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THE SUPPLY OF BUILDING AND CONSTRUCTION LABOUR  
and  
CONSTRUCTION WORKERS IN THE ARMED FORCES

Preliminary Reports IV and V.

on

The Construction Industry in Relation to Post-War Economic Policy

by

O.J. Firestone, M.A., Ph.D.

[ and VI. Recommendation. ]

Ottawa

February 1943.

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## Preface

Since preliminary reports IV and V deal with the civilian and military aspects of the problems of the construction labour force in this country, it is thought appropriate to combine both reports in order to offer a more cohesive picture than two separate reports would do.

The present report presents a selected number of facts and statistics which will assist in discussion of post-war problems of the construction labour force in Canada. The views of a number of representatives of organized labour and industry are also incorporated in this study. The report is to be taken as a basis for discussion. The information and views presented indicate the serious need of making appropriate plans for coping with the labour problems which the construction industry is going to face after the war.

Some representatives of the construction industry are inclined to doubt the correctness of statistics on construction workers, available in the Population Census and other publications of the Dominion Bureau of Statistics. Their attitude is based on "feeling" rather than on facts. An understanding of statistics hinges mainly on a grasp of the meaning of definitions on which statistics are based. In this study it has been endeavoured to show statistics published by the Dominion Bureau of Statistics in the proper perspective. Care should be taken when using the figures quoted in this report to note the reservations made otherwise misunderstanding is likely to occur.

It is important to realize that statistics relating to problems of labour supply can be regarded only as an indication of facts. Occupational statistics illustrating the situation in a vocational group cannot cover all the human weaknesses and deficiencies. It is human to overstate one's qualifications, the consequence being an inflation of occupational groups as reported by the Population Census and other statistical sources. In other words, some unskilled workers claim to be semi-skilled and some semi-skilled workers claim to be skilled and each are reported as such. For this reason it is necessary to make some reservations in order to make the proper interpretation of statistics possible.

These qualifications must be borne in mind when reviewing occupational statistics. It is desirable to see the problems of human need that lie behind the abstractness of statistics. If they are approached in this way, they can be regarded as valuable indicators of the problems which the construction industry will have to face in the post-war period.

The organization of construction industry and construction trades is dealt in preliminary report III which will follow shortly. A final report based on the material in preliminary reports I to V will give a summary of the findings of the preliminary reports and interpret them in the light of post-war requirements.

O.J. Firestone

February 1943.







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## SYNOPSIS

The success of a large scale construction programme after the war will greatly depend on a sufficient number of construction craftsmen in this country. It is therefore imperative to have some basic knowledge of the characteristics of the construction labour force. A discussion on training methods of construction mechanics after the war can only be useful if it is based on the needs of the industry. A number of important aspects relating to the definition, number, skill qualifications, regional distribution, post-war requirements and training facilities needed for construction workers is given in the following:

### Total Numbers

(1) Construction craftsmen, called persons in construction occupations in the Population Census, have for a long period presented about five to six percent of the total working population, the average for the period 1881 to 1931 being 5.17 percent. During these fifty years the skilled construction labour force increased steadily from 86,694 to 203,066 persons. Common labourers and persons of other professions employed in the construction industry are not included in the occupational group of construction.

(2) The increase in number of persons in construction occupations for the decade 1931 to 1941 can be estimated only. In the latter year 203,840 persons were reported in construction occupations (armed forces excluded). No figure is yet available for construction craftsmen in the armed forces in June 1941 but it may be assumed from statistics available for earlier and later dates that the number of persons in construction occupations in the armed forces was between 16,000 and 21,000. This makes a total of 220,000 to 225,000 construction craftsmen in Canada (armed forces included). In other words, the increase of construction craftsmen in the decade prior to 1941 was absorbed by the armed forces in June of this year.

(3) It is significant that the increase in the number of construction craftsmen (between 16,000 and 21,000) in the decade prior to 1941 is only about half of that of the decade prior to 1931 (about 40,000). Among the reasons which led to this reduction the following two points may have played an important role: (a) Construction activity in the decade prior to 1931 was much greater than in the decade prior to 1941. In other words, the annual average gross value of construction in the twenties was much higher than in the thirties. (b) Construction craftsmen in Canada have, to some extent, been recruited from immigration. Although immigration decreased in the twenties as compared with the years previous to the out-break of the last war, there was still considerable immigration to this country. During the thirties, however, immigration practically ceased.

### Regional Distribution

(4) In 1940 the biggest number of construction craftsmen between the ages 16 to 69 lived in the province of Ontario, namely approximately 71,000. Quebec with approximately 61,000 and British Columbia with approximately 17,000 followed. The remainder was made up among the other provinces as follows (approximate figures): Manitoba and Nova Scotia, each 10,000; Alberta, 9,000; New Brunswick and Saskatchewan, each 6,000; and Prince Edward Island, 1,400. If construction craftsmen could be distributed among the provinces in the same ratio as the total working population, it would be found that some provinces have a net-surplus of construction workers while other provinces record a net-deficiency. In other words, in some provinces there are more construction workers in relation to the gainfully occupied population than in other provinces. The following provinces show a net-surplus:





Quebec - 6,610; Manitoba - 1,203; Alberta - 675; Saskatchewan - 514 and Prince Edward Island - 408.

The following provinces show net-deficiency: Ontario - 4,737; British Columbia 2,728; Nova Scotia - 1,463 and New Brunswick - 480. The problem of a more even distribution of construction craftsmen deserves consideration when the role of the construction industry in Post-War Canada is discussed.

(5) Taking representative cities over 20,000 as an indication, the great majority of construction craftsmen live in towns and cities. Since urban centres are growing steadily no exact comparison of construction craftsmen in metropolitan areas can be made. It is, however, possible to take cities of over 20,000 in 1921 and compare conditions in these cities during the decade 1921 to 1931. About half of the total construction labour force resided in twenty-seven cities whose population numbered over 20,000 in 1921. Skilled construction workers in these cities increased by approximately 39 percent in 1931 over the 1921 level, as against approximately 25 percent for the whole of Canada. In other words, the growth of cities is marked by an increased proportion of skilled construction workers living there.

(6) In 1941 about 71 percent of the skilled construction labour force resided in urban, and about 29 percent in rural areas. Urban areas, as defined in the Population Census, include all incorporated towns irrespective of their size. Thus, for example, a small community numbering no more than 300 people but incorporated as a town is classified as urban, while another community numbering 1,000 inhabitants, not incorporated as a town, would be classified as rural. If the rural-urban distribution of construction craftsmen is compared with that of the total working population, the proportion of construction workers in urban areas exceeds by far the proportion of all gainfully occupied. There are only about 57 percent of all gainfully occupied living in urban areas as against 71 percent for persons in construction occupations. In this connection two points should be noted: (a) It is of significance that skilled construction workers are mainly recruited from urban areas while common labourers are recruited to a great extent from rural areas; (b) although the majority of construction craftsmen live in cities, they are available for work outside the cities. The majority of workers do not object to changing their residence temporarily to meet the demands of the construction industry.

#### Age Composition

(7) It is verified by a number of observations that building tradesmen are getting older. The Population Census of 1931 sheds interesting light on the age composition of construction craftsmen. On the average construction craftsmen are much older than all persons gainfully occupied. In 1931 only about 13 percent of persons in construction occupations were 24 years or younger, while about 28 percent of all gainfully occupied belonged to the same age group. Conversely, the comparative proportions for construction craftsmen and for the principal working population in the age group 25 to 64 years were 60 and 45 percent.

(8) The continuation of the aging process of construction craftsmen can be noted from the trend in the decade prior to 1931. The average age of construction craftsmen was higher in 1931 than in 1921. In the former year about 34 percent of the total number of persons in construction occupations were under twenty-five as against 36 percent in 1921. Although there are no age group statistics available from the 1941 Census, it appears from other sources that the average age of the construction craftsman continued to rise during the decade prior to 1941.

(9) The average construction craftsman in Canada is older than his colleague in Great Britain. This is shown in the following ratios indicating the relation of adult craftsmen to "apprentices, learners, and improvers" (British terminology) under 21 years. (This group includes in Canada those who work in construction occupations without





complying with apprenticeship regulations - common labourer excluded): England and Wales, 5.2 adults to 1 junior; Scotland 3.3 adults to 1 junior; Canada 10 adults to 1 junior. Since the definition of construction craftsmen in the British and Canadian Census differ, it has been found necessary to adjust Canadian figures somewhat to make them comparable with conditions in Great Britain.

(10) The semi-skilled and unskilled workers employed in the construction industry are considerably younger than the construction craftsman. Of persons in construction occupations registered under the Unemployment Insurance Act 1940, about 22 percent were 29 years or younger as against about 48 percent for male labourers.

#### Apprenticeship

(11) In Canada, there does not exist a uniform policy of training construction craftsmen. Only in Ontario and British Columbia has apprenticeship training in a formal way been recognized, apprenticeship acts introduced and an administration set up. In other provinces persons become construction craftsmen by doing the work of a craftsman without undergoing formal apprenticeship. After having done work in a particular trade for a number of years these persons acquire a certain skill. Generally they are not able to obtain such a high rating as a man who has undergone proper apprenticeship training. Employers are usually interested in making the most out of the labour of their employees. They are, therefore, less concerned with learning the worker a trade than with the results they can obtain from their workmen. In other words, if a man used to do rough carpentry, he will be kept on rough carpentry all the time and will not have the opportunity of improving his skill by learning fine carpentry work. For highly skilled construction craftsmen this country has greatly depended on craftsmen from Great Britain and other countries. It is important to realize that the major proportion of all construction craftsmen are Canadian born. According to the 1931 Census about 64 percent of persons in construction occupations were Canadian born, while the remainder (about 36 percent) were foreign born. As far as the total number of persons in construction occupations is concerned, the claim that the construction labour force in this country is mainly made up by immigrants is not justified. On the other hand, however, this claim seems to be justified as far as highly skilled craftsmen are concerned because of the lack of a uniform apprenticeship training policy in this country.

(12) Legal provisions and administrative measures relating to apprenticeship in the provinces of Ontario and British Columbia might be followed with advantage by other provinces. Before doing so, the practical results, which apprenticeship regulations in these two provinces have brought about, should be considered and possible improvements be studied. During thirteen and a half years of the operation of the Ontario Apprenticeship Act only 2,595 young men registered as apprentices, that is an average of 192 a year. It is estimated that in 1940 there was one apprentice for every 63 construction craftsmen working in the construction industry in Ontario. The proportion for British Columbia was higher, namely, one apprentice for 17 construction craftsmen working in the construction industry. During the seven years of operation of the Apprenticeship Act in British Columbia, 571 young men registered as apprentices, that is about 82 per year. It appears that the apprenticeship system in British Columbia was more successful than in Ontario especially if it is considered that the number of construction craftsmen in British Columbia is considerably smaller than Ontario.





(13) There are a number of reasons why the system of apprenticeship in Ontario and British Columbia has not measured up to expectations. Among the reasons are:

(a) The informal conditions of apprenticeship in this country has encouraged a considerable number of young men to work in construction trades without going through the burdensome requirements of formal apprenticeship. Working a few years as handyman, these men picked up knowledge in one of the other construction trades and then succeeded in getting recognition as skilled men by entering locals of trade unions. It is known that some locals of trade unions are less stringent in the examination of skill than other locals of the same trade union.

(b) Little encouragement is given to young men to enter construction trades. The depression of the early thirties caused considerable unemployment among construction workers. The fact that not even a proper training lasting four to five years gave an assurance of employment held back many youths from entering construction trades.

(c) The war has increased the demand for skilled construction labour and contractors have allowed semi-skilled men to do the work of skilled men. A dilution of the skilled construction labour force has taken place. It is estimated that in June 1941 only 20 to 25 percent of persons 21 years and younger in construction occupations were registered as apprentices in the province of Ontario; the remaining 80 to 75 percent of this age group were working in construction occupations without undergoing a proper apprenticeship training. Needless to say, the higher wage rate which is usually paid to the man who does not undergo the proper apprenticeship training, has been a considerable incentive to new men in trying to avoid the formal procedure required for a proper apprenticeship training.

At the meeting of the Vocational Training Advisory Council in Ottawa (February 22 - 24, 1943) it was pointed out that the practical results of the Ontario Apprenticeship Act are "puny indeed" (see Appendix III). This statement has to be seen in the proper perspective. Neither the Ontario Apprenticeship Act nor the administration can be blamed for the meagre results obtained during the last thirteen years. It is mainly the lack of a uniform policy of training methods and the absence of encouragement to youths to enter construction trades that has brought about the situation which we have to face now.

(14) There is a general agreement among all those concerned with the future of apprenticeship training in this country that it would be desirable to obtain a more uniform policy. It may either be that provinces having no apprenticeship regulations follow the example of Ontario and British Columbia, or it may be that a new system of apprenticeship training be created which will be adopted by all provinces (see point 31). It may further be advisable to agree on a definition of craftsmanship and endeavour to obtain recognition of this definition by the construction industry, trade unions and government departments. Every person not having the qualification set out in the definition for construction craftsmen would not be regarded as such and thus a dilution of the construction labour force may be avoided in the future. Consideration will have to be given to the question whether a licensing system of construction craftsmen is a possible answer to this problem. There will certainly be objections from some quarters against the licensing system. It will be necessary to examine the pros and cons of such a scheme before any conclusions as to its advisability can be reached. However, there is no doubt that the industry and the trade unions themselves will agree on the desirability of solving the problem of training and status of craftsmen in the construction industry. Once the question of the definition of craftsmanship is settled, it can be expected that disputes about wage rates for different grades of skill within one trade will diminish in intensity. There will





be less argument whether the man is a rough carpenter or a fine carpenter or one of the other ten possible shades of carpentry. If the definition of a skilled carpenter is generally accepted, there will be one wage rate to cover carpenters irrespective of whether they fit in doors or put up walls. Such a practice would be similar to conditions in Great Britain which are generally recognized as beneficial to both industry and labour. Should a system of licensing be introduced it would be commendable to enable those who have not yet reached the stage of skilled construction craftsmen to become qualified by undergoing adult apprenticeship training or upgrading.

#### Employment in Construction Industry

(15) The importance of distinguishing between persons in construction occupations and persons employed in the construction industry can hardly be over-emphasized. The former group consists of craftsmen only - more accurately of those claiming to be craftsmen - a proportion of whom work in the construction industry while the remainder work in other industries. The labour force in the construction industry is composed of construction craftsmen, apprentices, common labourers, persons of other professions than construction and clerical staff.

(16) Any estimate of the proportion of skilled and unskilled workers employed in the construction industry hinges on the definition of skill. Ratios indicating a skill composition must be taken as approximate only, since there does not exist a definition of skill accepted uniformly by both the industry and the trade unions. In other words, skill lines are not drawn rigidly in the construction industry.

(a) Accepting the Census definition of skill, it can be said that the proportion between construction craftsmen and apprentices, semi-skilled and unskilled workers (classified as common labourers) was 67.3 to 31.7 in June 1931.

(b) Taking advantage of a survey undertaken recently by the Department of Munitions and Supply the following picture of the skill composition can be obtained. In August 1942, the ratio of skilled to semi-skilled and unskilled workers for firms having fifteen or more employees was 42.3 to 57.7. The construction labour force consisted of 10 percent clerical staff and supervisors, 38 percent construction craftsmen and 52 percent semi-skilled and unskilled construction workers. Large contracting firms employed in proportion considerably more semi-skilled and unskilled construction workers in 1941 than indicated by the average ratio of 1931. Because individual working proprietors and small contractors employ only a comparatively small number of semi-skilled and unskilled workers, the ratio of skilled to semi-skilled and unskilled workers in the construction industry as a whole has not changed as greatly as figures for large contracting firms would indicate.

The writer has estimated that the proportion between skilled and unskilled construction workers amounted to 60 to 40 for the construction industry as a whole in August 1942 taking the Census definition of skill as a basis. The definition of skill in the Census is not the same as that in the survey of the Department of Munitions and Supply. Skill qualifications in the Census are based on statements by individuals concerned. The survey of the Department of Munitions and Supply is based on reports from employers who usually rate the skill of their employees more rigorously than the workers do. Reports made by the employers give, therefore, a more accurate picture of the proportion of craftsmen working in the construction industry than the Census. The weak point in the employers survey is that it covers only a proportion of the field of employment provided by the construction industry.

(17) A significant point should not be overlooked. The continuous employment of semi-skilled men on construction during war-time has brought about the upgrading of these men. This means that a number of men, who by no means could be considered as craftsmen before the out-break of the present





war, are learning a trade by doing a craftsman's job for a number of years. Although these men have not got the all-round experience of craftsmen who have undergone the proper training, they are able - at least temporarily - to satisfy the demands of employers. This upgrading might be a temporary solution for the duration of the war but the usefulness of such a scheme for the post-war period is seriously questioned.

(18) Since employment in the construction industry is quite distinct from persons in construction occupations, the question arises what proportion of craftsmen work in the construction industry proper. In terms of Census measurements there were, in 1931, about two-thirds of persons in construction occupations (65.6 percent) returned as employed in the construction industry, the remainder of craftsmen working in other industries (this ratio is distinct from that given in 16a). This proportion has declined since the out-break of the war. It is estimated that owing to enlistments and transfers to war industries only about fifty percent of craftsmen were working in the construction industry in 1940. It should also be noted that the war has brought retired construction craftsmen back to the labour market and thus temporarily increased the number of gainfully occupied craftsmen.

(19) An important feature of the construction industry is the comparatively great number of persons working on their own account (employers and working proprietors). It is estimated by the Business Statistics Branch of the Dominion Bureau of Statistics that during 1919 to 1938 on an average, 74 percent of all persons gainfully occupied in the construction industry (construction work performed by private contractors only) were employees, while 26 percent were working on their own account. These proportions cannot be expected to agree with those of the 1941 Census. Preliminary figures from the Census show a proportion of 83 to 17 for employees and persons working on their own account. Among the reasons explaining the change of proportions are: (a) The estimates of the Business Statistics Branch cover only one section of construction activity while the Census relates to the industry as a whole; (b) in the last two decades the number of individual working proprietors has declined because of the increased difficulties in making a living by carrying on small businesses. The process of centralization has made itself felt even in such a backward industry as the construction industry. In consequence a number of "small men" went out of business and became employees.

(20) One of the reasons, why workers are not fully employed in the construction industry throughout the year, is their dependence on the weather. Seasonal unemployment in the construction industry intensifies unemployment caused by the changing phases of the business cycle. In recent years seasonal unemployment has decreased. This fact can be explained by technological improvements and the imperative demands made by the war on construction industry. As a rule, employment is lowest in February and March and highest in August and September.

(21) The varying field of employment offered by the construction industry is reflected in the income of persons gainfully occupied in the industry. It is generally thought that the construction worker earns on an average more during one year than the average working man. This, however, is not true. According to estimates made by the Business Statistics Branch of the Dominion Bureau of Statistics a person gainfully occupied in the construction industry (refers only to construction work performed by private contractors) earned during the period 1919 to 1938 \$1,003 yearly as against \$1,090, the earnings of the average working man. During this period the employee received on an average an annual income of \$929, while persons on their own account earned \$1,204 per year. Since the out-break of war the annual earnings of the construction workers have risen above the level of the average gainfully occupied person. A preliminary estimate for 1942 shows annual earnings of persons gainfully occupied in the construction industry of \$1,486 as against \$1,361 for the average gainfully occupied person. Complaints are often heard from contractors about the high hourly rates paid to construction workers. Judging from pre-war trend of annual earnings of persons employed in the construction industry, the construction worker earns less than the average working person in spite of a comparatively high hourly rate.





This is mainly due to the fact that the construction worker loses on an annual basis more working days than any other working person. It seems feasible that a reduction of the comparatively high hourly wage rate of the construction worker could be obtained if the worker could be assured of a more continuous employment and thus be provided with an income which would allow him a decent standard of living. If continuous employment could be secured for the construction worker, two problems could be solved. The employer would have to pay a lower hourly wage rate and the worker would earn in the course of a year more than he used to earn in pre-war days. No doubt, any such scheme of distributing work throughout the year more evenly and at the same time reducing hourly rates would experience great difficulties. Nevertheless, this point deserves serious attention. The reduction of hourly wage rates is considered by some sources as one of the essential requirements of a successful large-scale building programme after the war.

#### Construction Workers in the Armed Forces

(22) In August 1942 there were between 30 to 35,000 persons in construction occupations in the armed forces. About 90 percent of this force had been employed previous to their enlistment and about 10 percent had been without work when they enlisted. Figures relating to construction workers in the armed forces are based on occupational history forms available in the Manpower Records of the Department of Labour. The skill qualification is similar to that of the Population Census.

(23) From five to six percent of the total number of persons in construction occupations were in the armed forces in August 1940. This proportion has risen since. For August 1942 it is estimated that about 15 percent of the total skilled construction labour force was in the armed forces.

(24) On August 31, 1942 there were 2,121 young men in the armed forces who claimed that they had been construction apprentices before enlistment. Of these 89 percent reported that they were employed at the time of enlistment as against 11 percent without employment. These figures relate only to a major sample of persons in the armed forces. It is estimated that there were approximately 4,000 construction apprentices in the armed forces (August 31, 1942). These figures are based on returns from men themselves. Some of the men claiming to be construction apprentices might not be such in the terms of the Apprenticeship Acts in Ontario or British Columbia. These men, however, might have a good claim because they have probably complied with what was the practice in other provinces than Ontario and British Columbia. The high percentage of employment among those claiming to be construction apprentices indicates that the claims of the enlisted men will be justified in the majority of cases.

(25) A sample study of 27,743 men discharged from the armed forces as at June 30, 1942 included 2,197 construction craftsmen. It was not difficult to absorb these men in construction industry because of the present shortage of skilled construction workers. The post-war period, however, presents an entirely different outlook.

#### Post-War Rehabilitation of Construction Workers

(26) The task of placing the Canadian war economy on a peacetime footing will be at least as difficult as the transition of the peace time economy of 1939 to the wartime economy of 1942. In the construction field the task of rehabilitation will include three groups of men: (a) Men discharged from the armed forces; (b) construction workers released from war factories; (c) men working in the construction industry who have been mainly engaged on construction work connected with the war effort. Figures relating to a rehabilitation programme cannot be accurate because of a great number of uncertain facts. The estimates, however, may be useful as an indication of the task of rehabilitation which this country might have to face after the war. Had the war ended on August 31, 1942, the task of rehabilitation would have consisted in finding employment for 170,000 men.





(a) Of the 30,000 to 35,000 persons in construction occupations who were in the armed forces at August 31, 1942, only 37 percent had a definite promise of employment or had made arrangements to return to their former civilian vocations. The remainder, or 63 percent, representing a group of 19,000 to 22,000 men were without definite promise of employment and had made no other arrangements to earn their livelihood after discharge.

(b) The number of persons in construction occupations working in war industries is not known. Most of those men work as maintenance men (for example electricians, carpenters, plumbers, etc.). Some of those men are employed on structural work with firms not connected with the construction industry. To complete the picture given in this analysis, the number of construction workers released from war industries is arbitrarily taken as 25,000.

(c) During the week ending August 1, 1942, no less than 61.3 percent of the total number of persons employed by firms with fifteen or more employees were engaged on construction connected with the war effort, and only 38.7 percent on "civilian construction. War construction provided employment for approximately 102,000 men of whom 47 percent were considered as skilled by their employers. Thus nearly 48,000 men in construction occupations would have been without work since it can be assumed that construction for war purposes will discontinue shortly after peace negotiations have commenced. This estimate includes only men employed by firms having fifteen or more employees. Allowance has to be made for firms with a smaller number of employees and for individual working proprietors. To cover this group, it is assumed that 12,000 construction workers would have been out of work had the war ended in August 1942. Thus, a total of 60,000 persons in construction occupations, employed in the construction industry, would have been out of work.

(d) Summarizing, it can be said that there would have been over 100,000 persons in construction occupations looking for work if the war had ended in August 1942. In other words, nearly half of the total skilled construction labour force in this country would have been without work. Considering that the employment of construction craftsmen also makes necessary the employment of semi-skilled and unskilled workers, the rehabilitation of over 100,000 construction craftsmen would have made employment for a total of about 170,000 persons (skilled, semi-skilled and unskilled) necessary.

(27) The task of rehabilitation increases the longer the war lasts. The number of persons in construction occupations taken into the armed forces, rises steadily. It must further be borne in mind that the above estimates are rather conservative. Some soldiers, who have a definite promise of employment, may not be able to get back to their previous jobs because their employers are unable to fulfill their pledges. Other independent working proprietors either enlisted in the armed forces or working at present in war factories may find it hard to start again on their own and thus increase the number of those looking for jobs. If the war ends in 1945, the task of rehabilitation may well be larger than the one outlined above. It may well be that employment will have to be provided for as many as 200,000 skilled, semi-skilled and unskilled men in construction. This outline may suffice to indicate that the task of rehabilitation will be formidable. The most effective answer to this problem will be a construction programme of a size which will give an opportunity for work for all those who will be looking for it in the construction field. It will mean an extension of the volume of construction above the level of the one carried out during wartime in order to offer employment to those who, because of their service in the armed forces or work in war factories, have not been able to take part in the construction programme carried out during the war. Needless to say, such a large-scale construction programme will only be necessary for a limited period in order to serve as a shock absorber until other industries are able to offer remunerative employment and relieve the pressure on the construction labour market. The outstanding feature of any large-scale construction programme after the war is the fact that it will help to solve two problems: Firstly, it will be possible to catch up with the large backlog of construction which has come into existence in the course of the last decade and has been further increased by the diversion of a large proportion of construction activity for war purposes; secondly, a big construction programme will assist in providing employment for





persons discharged from the armed forces and released from war industries during an interim-period until the Canadian economy returns to production for peace-time purposes and is in the position to absorb some of the labour force working on construction.

Post-War Requirements for Skilled Construction  
Craftsmen and Training Facilities

(28) The fact that employment will have to be provided for a number of construction craftsmen who will be without work after the war should not deter us from making provisions for the training of an additional number of building mechanics. There are several reasons for this: (a) Construction craftsmen are considerably older than their colleagues in Great Britain and the average gainfully occupied person in this country. At present provisions for training new construction craftsmen in this country are by no means satisfactory. Because of the lack of a uniform apprenticeship policy and of encouragement to youths to enter construction trades, the number of newly trained men does not suffice to meet the requirements of the construction industry; (b) some of those who have classified themselves as construction craftsmen and are enumerated as such in the Population Census are not up to standard. This means that a proportion of persons in construction occupations could profit greatly from upgrading courses; (c) the growth of the construction labour force during the decade prior to 1941 was only half of that of the decade prior to 1931. It may be desirable to make up for this deficiency in order to meet the increased requirements of the construction industry after the war. To supply the additional skilled labour force required, it is advisable to distinguish between requirements for a short-term programme and a long-term programme.

(29) It is estimated that Canada will require about 40,000 building mechanics in the course of two to three years after the war. Compared with Great Britain on a per capita basis this estimate is below requirements of Post-War Britain. In February 1943 the British Government announced that it is planning a huge post-war construction programme which will give employment to 1,250,000 men. In order to meet the shortage of skilled labour, provisions are made to train 200,000 persons during the first three to four post-war years, mainly by special training courses given to adults. A training programme of 40,000 building mechanics for Canada seems therefore justified. Recruits for such a training programme can be obtained from the following sources of labour supply: (a) A small number of young men below military age working as construction apprentices; (b) construction apprentices in the armed forces who have interrupted their training when they enlisted; (c) a number of men who have acquired certain skills while serving with the armed forces; (d) a number of men who have acquired certain skills while working in war factories and can be useful to the construction industry; (e) some of the semi-skilled men at present working in the construction industry who are considered fit for upgrading; (f) If the sources of labour supply enumerated in (a) to (e) do not suffice to provide 40,000 men to be trained in construction occupations to meet the short-term requirements, the remainder can be made up by permitting selected immigration of construction craftsmen from Europe. No immigration of craftsmen can be expected from Great Britain since she has made clear that she needs her construction craftsmen at home.

(30) It has been estimated that a long-term programme providing for ten years after the conclusion of the war will require at least the training of 100,000 construction craftsmen. If 40,000 men can be obtained in the course of a short-term programme from the sources described in (29), it will be necessary for this country to train 60,000 young men, that is 6,000 annually, in order to meet the requirements of a long-term programme. These estimates are based on the assumption that social security measures will be introduced after the war and the retirement of men between the age of 65 and 70 will be possible. Opposition can be expected against a large-scale training programme of construction craftsmen from a section of the older construction workers. These men fear that it will be hard for them to compete with the newly trained men who, because of their lower age, will find it easier to secure jobs. These objections might be overcome by assuring construction craftsmen (a) that it is intended to





provide work for all and that those at present in construction occupations need not fear unemployment; (b) that in case of unemployment for short periods unemployment insurance will take care of them; and (c) that old age pensions will make retirement between the age of 65 to 70 years possible. Social security for construction craftsmen will be an ameliorating factor if the difficulties experienced in pre-war days are not entirely absolved in the post-war period.

(31) The need for training a considerable number of construction workers in the post-war period brings up the question of what should be the guiding principles of training after the war. Apprenticeship in the rigid form as known in Europe for centuries has not become popular in this country. It bears emphasis that apprenticeship training in the provinces of Ontario and British Columbia has been somewhat adjusted to Canadian conditions. The difficulty, which those charged with the administration of the apprenticeship acts experienced in placing a sufficient number of apprentices in the industry, has forced them to rely to some extent on the training of youths in trade schools. In Ontario, for example, apprentices attend technical schools in the first two years of their training and receive there special intensive courses in their trades and in educational subjects related thereto. This practice indicates the changing trend of apprenticeship training from the old system where the education of a would-be-craftsman was left to the discretion of his master, to a new system where the education of the would-be-craftsman is made the joint responsibility of labour, industry, and government. Increased emphasis laid on training in technical schools supplemented by practical work marks this development. It seems that we are facing a process of evolution of a new type of apprenticeship system leaving the rigid system of formal apprenticeship of the past and turning to a new system of apprenticeship which upholds the principles of the old system without its rigidity. It should not be forgotten that building after the war will make use of new materials and new methods which have been devised during this war. A new type of craftsman may become necessary to handle this new type of material. It may therefore become advisable to give a proportion of building mechanics a more general training than was hitherto the case. These men could, because of their previous knowledge, easily be adjusted to fit the requirements of the construction industry of the future. For example, a number of representatives of the construction industry believe that plastic material will play an important role in post-war building. It may well be that whole sections, walls, fixtures and other parts will consist of plastics. There will be need for building mechanics who are familiar with handling plastic materials. If men have received a proper training in technical schools which continuously change their courses in compliance with technological development, then it will not be too difficult to provide a sufficient number of the new type of construction craftsman required in the post-war period. We do not know exactly at the present time what type of new building mechanics will be required after the war but we have to face the problem of the training of craftsmen in the future with vision and imagination. Only thus will we be able to make proper provisions for meeting the requirements of the construction industry in the post-war world.





## I. THE CONSTRUCTION CRAFTSMAN

The construction craftsman is a person who has acquired specialized skill qualifying him to carry out one or other of the operations needed for the purpose of completing structures or buildings. The Dominion Bureau of Statistics refers to craftsmen by speaking of persons in construction occupations. The following professions are described as construction occupations:

- Owners, managers, builders and contractors.
- Foremen and overseers.
- Brick and stone masons.
- Carpenters.
- Cement finishers.
- Electricians and wiremen.
- Painters, decorators, and glaziers.
- Plasterers and lathers.
- Plumbers, steamfitters and gas fitters.
- Roofers (not metal) and slaters.
- Sheetmetal workers and tinsmiths.
- Structural iron workers and steel erectors.

Construction apprentices are included under the heading "persons in construction occupations". Not included are semi-skilled workers and common labourers who are engaged in construction operations.

To indicate persons in construction occupations the following synonymous expressions are used, "construction labour force", "skilled construction workers" and "construction craftsmen". Managers, builders and contractors are included in this group since most of the builders and contractors were formerly craftsmen themselves before they became entrepreneurs.

### The Strength of the Skilled Construction Labour Force

Construction work was always a profession of men. The Population Census in 1931 reported 202,970 men and 96 women, a total of 203,066 persons in construction occupations. The total of gainfully occupied in Canada amounted to 3,927,230 in the same year. Thus the construction labour force represented 5.17 percent of all gainfully occupied. A 10 percent sample from the 1941 Census offers the following picture: persons in construction occupations - 203,840; all gainfully occupied - 4,195,370. Persons in construction occupations numbered 4.85 percent of the total of gainfully occupied (Armed Forces excluded). Compared with 1931, the proportion of persons in construction occupations to total gainfully occupied declined in 1941 even if allowance for skilled construction workers in the armed forces is made.

It is interesting to note that on the whole the ratio of persons in construction occupations to all gainfully occupied has hardly changed during the period 1881 to 1931. The ratio amounted to 5.32 percent in 1891, 4.95 percent in 1901, 5.29 percent in 1911 and 5.11 percent in 1921 (see Table I). It appears that even the great volume of construction accompanying the great flow of immigrants during the first decade of the twentieth century did not cause a change in the proportion of persons in construction occupations to all gainfully occupied. It follows that it will take a building boom greater than that of 1911 and the years previous to induce a greater proportion of persons to enter the building trades than hitherto. There is no doubt that technological changes will have an important bearing on the number and qualifications of the construction craftsmen of the future.





TABLE I

ABSOLUTE AND COMPARATIVE GROWTH OF THE CONSTRUCTION  
LABOUR FORCE (1)

1891-1941

A	B	C	D
Year	Persons in Construction Occupations Number	Total of Gain- fully Occupied Number	Ratio of B to C Percent
1891	86,694	1,615,608	5.32
1901	89,615	1,799,008	4.95
1911	144,103	2,723,634	5.29
1921	162,291	3,173,169	5.11
1931	203,066	3,927,230	5.17
1941 (2)	203,840	4,195,370	4.85

The figure for 1941 is preliminary only. It is, however, probable that the ratio of construction craftsmen to the total working population will not change greatly when final figures are available. If the figure in column B will be adjusted for men in the armed forces, the figure in column C will also have to be adjusted for the total number of enlisted men.

From estimates available for construction craftsmen in the armed forces in August, 1940 (approximately 10,000) and August, 1942 (between 30,000 and 35,000) it can be assumed that construction craftsmen in the armed forces numbered between 16,000 and 21,000 in June, 1941.

It is interesting to note that the increase in the number of construction craftsmen during 1931 to 1941 is equal to the number of persons in construction occupations in the armed forces in June, 1941. The number of construction craftsmen rose by about 40,000 in the decade prior to 1931 as against 16,000 to 21,000 in the decade prior to 1941. The drop in the growth of the number of construction craftsmen in the last decade to about half of that in the previous decade marks quite clearly the declining economic opportunities offered for construction craftsmen in the construction industry and other industries which usually employ construction craftsmen on maintenance or other work.

Pending the release of definite figures for the 1941 Census, calculations in this study are based on a construction labour force of 200,000

(1) Data taken from Population Census 1931, Volume VII, pp. 982-983 and preliminary bulletin of the 1941 Census, "Occupations and Earnings", No. 2.

(2) Figures for 1941 are based on a ten percent sample study. Men in the armed forces are not included.





men, representing the figure given in the National Registration 1940 plus an allowance for age groups not included and incomplete occupational coverage. These statistics are supplemented by data available in "The Insured Population, 1941-1942", a monograph published by the Dominion Bureau of Statistics giving information on persons registered under the Unemployment Insurance Act, 1940.

The National Registration shows that there were 191,875 persons in construction occupations between the ages of 16 to 69. Construction craftsmen in the Armed Forces were not included in the National Registration. The biggest proportion of construction craftsmen was made up by the group of carpenters which amounted to 79,103. This represents 41 percent of the total labour force (see Table II). The next biggest group was made up by painters, decorators and glaziers, who numbered 40,172 or about 20 percent of the total strength. This group was followed by plumbers and steamfitters, numbering 17,247, and electricians and wiremen numbering 16,008. The balance was made up by other construction trades, including contractors and managers (see Figure I).

TABLE II  
PERSONS IN CONSTRUCTION OCCUPATIONS,  
NATIONAL REGISTRATION 1940. (1)

Occupation	Number	Percent
Owners and managers	11,539	6.02
Foremen, overseers and inspectors	5,538	2.89
Brick and stone masons	8,609	4.49
Carpenters	79,103	41.22
Cement and concrete finishers	1,391	.72
Electricians and wiremen	16,008	8.35
Painters, decorators, glaziers	40,172	20.94
Plasterers and lathers	4,860	2.53
Plumbers and steamfitters	17,247	8.99
Sheetmetal workers and slaters	1,581	.82
Structural metal workers	1,927	1.00
Other construction occupations	3,900	2.03
TOTAL	191,875	100

The 191,875 persons in construction occupations represented the "present" strength in 1940. These persons were entered under the heading of "present occupation". Included were persons who happened to be idle or unemployed at the time the National Registration took place. These persons were enumerated under the occupations followed when last employed.

It was found advisable to distinguish in the National Registration between "present occupation" and "regular occupation". The latter classification included persons whose regular or usual occupations were specialized but were different from those in which they were at the time of registration. Registrants would be included under "present occupation"

(1) Table compiled from "Specialized Occupations, National Registration, 1940", Table 6, p. 22.





FIGURE I

# CONSTRUCTION OCCUPATIONS 1940



Chart showing the composition of the construction labour force as reported in the National Registration, August 1940.





and under "regular occupation" if their present and regular occupations were both specialized. For example, a person employed in August 1940 as a carpenter, reporting that his regular occupation was that of a machinist, would be included under building and construction and under manufacturing - metal products. Where "present" and "regular" occupations were identical, registrants were listed only under the "present" occupational heading. In the "regular" category were included home makers, retired persons, etc., who were not gainfully occupied but reported specialized occupations as their previous regular means of livelihood. There were 79,469 persons who gave their "regular occupation" as construction. In other words nearly 80,000 persons maintained that they had some training in construction occupations but were not working in that field when the National Registration took place.

There are valuable data available in the National Registration 1940 which give some indication of the flexibility of persons in construction occupations. For instance, 148,925 persons in construction occupations claimed that they possessed experience, or were otherwise proficient in specialized trades and services, different from any they reported as either their present or regular occupations. This grouping reveals extra skills and professions of the construction labour force. Even if a great number of those claiming to possess other specialized skill than construction have overstated their ability, there still remains the fact that there is a great number of people in the construction trade who can earn their livelihood in a different capacity if need arises. The claim of knowledge in other trades than their own, put forward by 148,925 persons, illustrates the possible range of a movement from construction to other civilian vocations at times when a depression hits the construction industry more severely than any other field of economic activity.

The fact that the occupational flexibility of construction craftsman is greater than that of the average gainfully occupied person, enumerated in the National Registration, can be noted from the following figures: Out of 1,127,307 persons (agriculture excluded) included in the National Registration, 698,895, or 63 percent, reported to possess experience in other specialized trades. On the other hand, 71 percent of the construction labour force claimed to have experience in other trades than the one they occupied when the National Registration took place.

The National Registration also provides information on the composition of the construction labour force with regard to its employment status. Employers numbered 15,448 and represented 8 percent of the total construction labour force; 27,846 persons (14 percent) were working on their own account; 129,535 persons (68 percent) were employees; 19,046 persons (10 percent) reported that they were not employed in August 1940.

#### Age Composition of the Skilled Construction Labour Force

Persons in construction occupations are older than the average person gainfully occupied. This is partly due to the fact that Canada has depended on immigration for her highly skilled construction craftsmen. (1) In proportion, the number on construction craftsmen, who have undergone a formal apprenticeship training in this country, is very small. Since immigration was practically discontinued towards the end of the twenties, the number of new men entering construction trades has considerably decreased. Furthermore, the depression at the beginning of the thirties discouraged young men from learning construction trades. Since a number of construction craftsmen could not find any work during the depression there was little incentive for young men to enter a trade which would require four to five years training but gave no assurance of employment. When economic conditions improved towards the end of the thirties, and the construction trade would have been able to absorb a number of apprentices, little encouragement was

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(1) For a discussion of the proportion of Canadian and foreign born construction craftsmen see Section II.





given to young men to enter these trades. A youngster could earn a few dollars a day as a helper. If he had worked as an apprentice he would hardly earn anything during the first two years while towards the end of his apprenticeship his income would be still below that of a helper.

These two factors, namely, lack of encouragement to young Canadians to enter construction trades and lack of immigration of skilled construction craftsmen should be borne in mind when considering the age composition of persons in construction occupations.

The Population Census 1931 reported 0.13 percent of persons in construction occupations belonging to the age groups 10 to 15 years. The percentage for all gainfully occupied was 1.34 percent. Only 3.28 percent of persons in construction occupations belong to the age group 16 to 19 against 10.42 percent of all gainfully occupied. It can readily be observed that the proportion of all gainfully occupied belonging to this very important age group was more than three times as big as that of persons in construction occupations. The next two age groups, 20 to 24 and 25 to 34 are also marked by the fact that the percentage of persons in construction occupations belonging to these groups was smaller than the percentages indicating the age structure of all gainfully occupied. The figures are 9.95 percent against 15.75 percent, and 21.07 percent against 23.3 percent. The proportion of construction craftsmen of 35 to 64 is much greater than the proportion of all gainfully occupied. The percentage amounts to 60.06 for the former and only 44.57 for the latter. A similar picture is presented by the age groups 65 years and over, persons in construction occupation representing 5.51 percent against 4.62 percent for all gainfully occupied (see Table III and Figure II).

A comparison of age groups in construction occupations for the period 1921 to 1931 shows clearly that the average construction worker grew older. There was 0.44 percent in the age group of 10 to 15 in 1921 against 0.13 percent in 1931. The proportion for the age group, 16 to 19, decreased from 4.12 percent in 1921 to 3.28 percent in 1931. A slight increase occurred for construction workers of the age group 20 to 24 years, namely, from 7.87 percent to 9.95 percent but there was a decrease for the age group 25 to 34 years, from 24.01 percent in 1921 to 21.07 percent in 1931. The age groups, 35 to 64 years and 65 years and over, show an increase in 1931 over the 1921 level. The figures are: 58.07 percent in 1921 against 60.06 in 1931, and 5.49 percent in 1921 against 5.51 percent in 1931 (see Table IV and Figure III).

Some more recent information on age groups in construction occupations is to be found in the National Registration 1940 and data made available by the compilation of statistics for persons insured under the Unemployment Insurance Act, 1940. (1)

The variation of the age groups taken from these two sources is small. It can, therefore, be assumed that the data available are approximately accurate. Under the Unemployment Insurance Act, 134,370 persons were given as in construction occupations as at March 31, 1942. Of this number 0.23 percent belong to the age group under 16 years, 3.73 percent to the age group 16 to 19 years, 17.8 percent to the age group 20 to 29, 25.62 percent to the age group 30 to 39, 22.39 percent to the age group 40 to 49, 20.52 percent to the age group 50 to 59, 8.58 percent to the age group 60 to 69, and 0.87 percent to the age group 70 and over. The remaining 0.26 percent did not state their age (see Table V).

Age groups available in the registration under the Unemployment Insurance Act cannot be used for the purpose of comparison with statistics available in the 1931 Census. Figures for the former relate only to wage

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(1) Bulletin on "The Insured Population, 1941-42" published by the Dominion Bureau of Statistics in 1942. This bulletin covers all schedules received by the Dominion Bureau of Statistics between July 1, 1941 and March 31, 1942.





FIGURE II

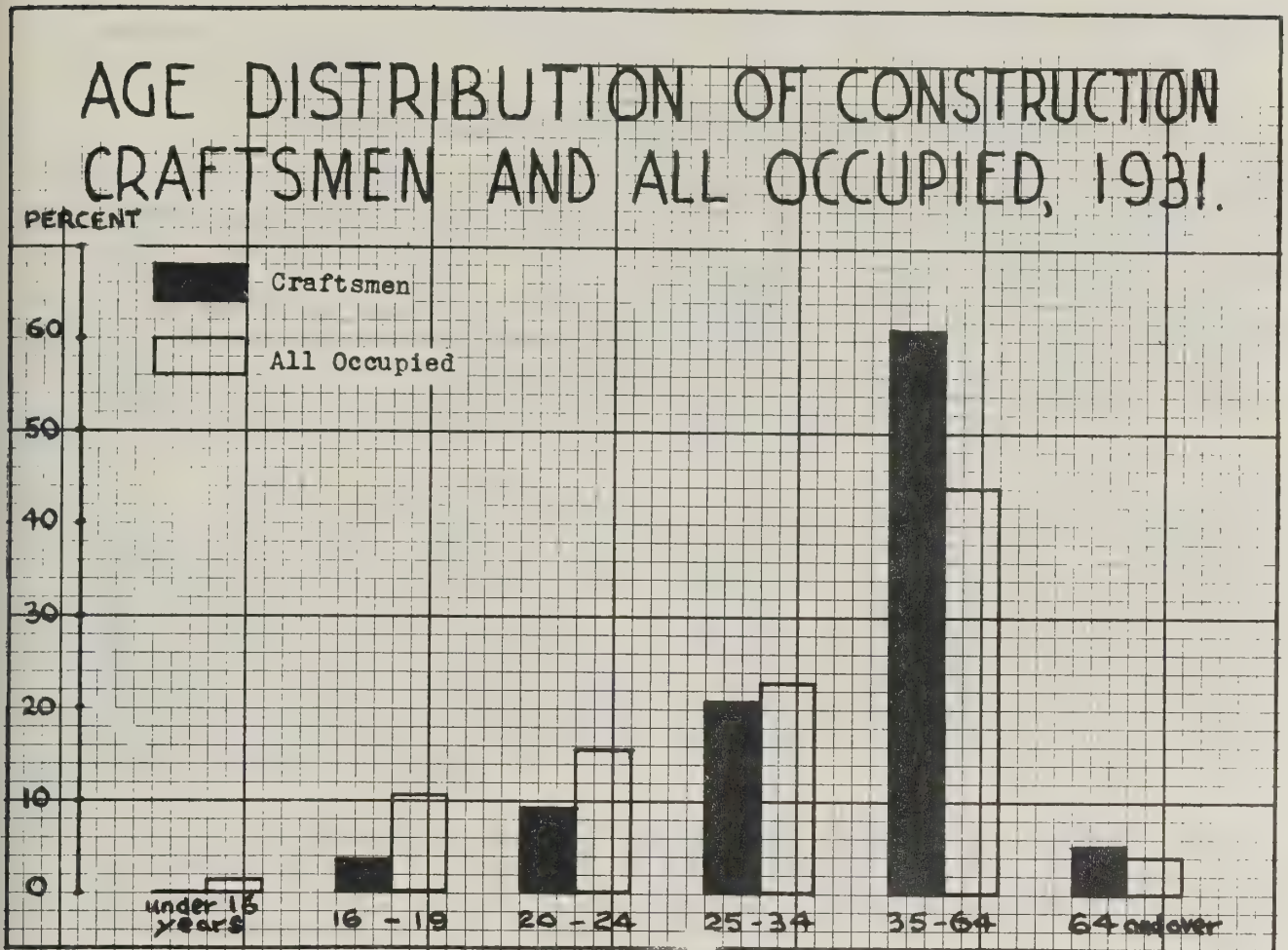
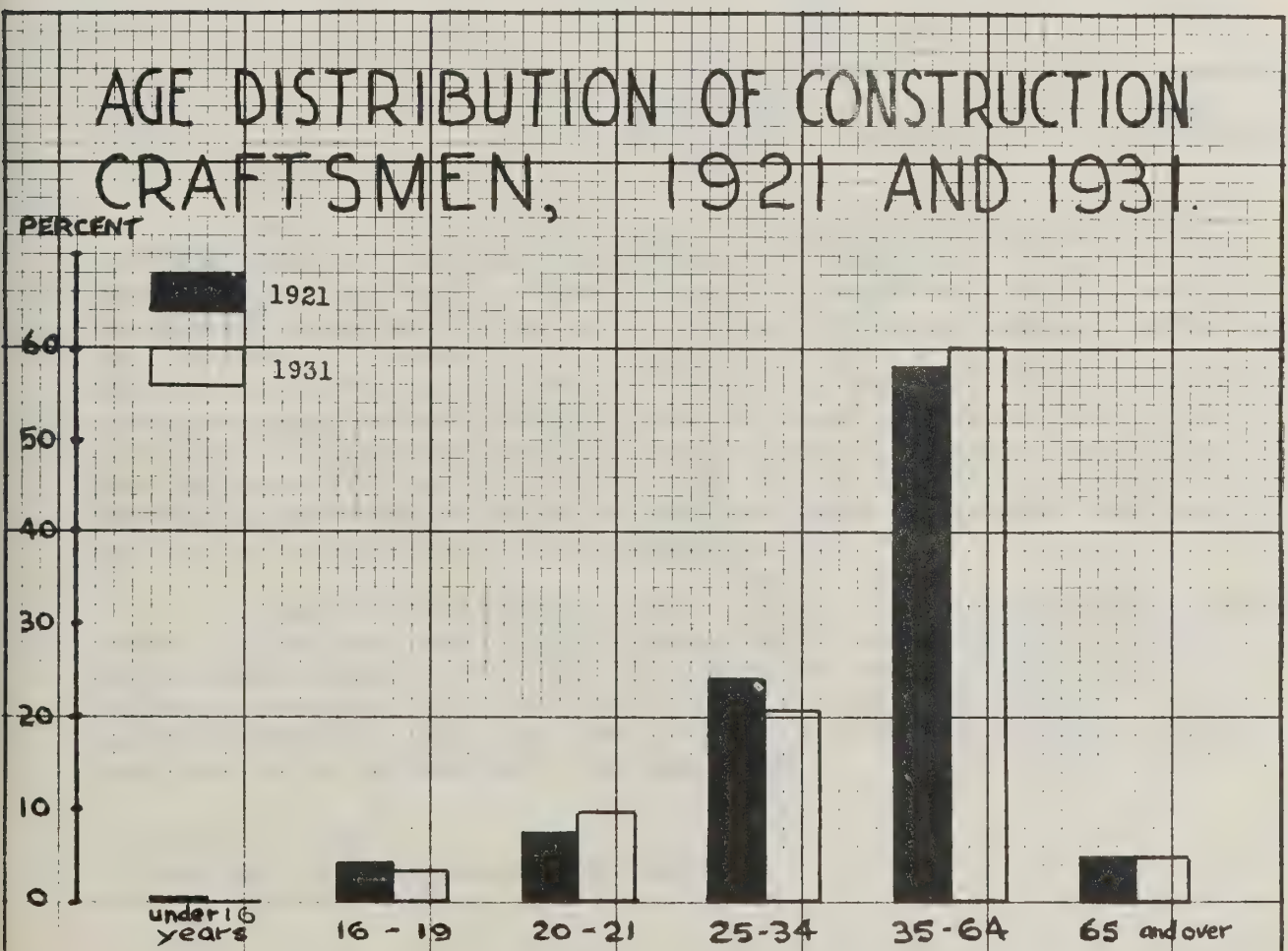


FIGURE III







earners, while figures contained in the latter relate to wage earners and own account workers.

#### Provincial Distribution of Construction Craftsmen

The biggest number of construction craftsmen is to be found in the Province of Ontario, where 36.96 percent of the total skilled construction labour force was residing at the time when the National Registration of 1940 took place (see Table VI). If this percentage is compared with the proportion of all gainfully occupied, excluding agriculture (males only), residing in the Province of Ontario, namely 39.43 percent, then we find that the proportion of persons in construction occupations in this province is smaller than the proportion of all gainfully occupied (see Figure IV). The problem of a more even distribution of construction craftsmen is discussed below.

There were 31.66 percent of the total skilled construction labour force living in the Province of Quebec. This percentage is greater than the proportion of all gainfully occupied numbering 28.22 percent. It follows that it is easier to make a living in the construction trade in the Province of Quebec than in other occupations. If economic opportunity would be equal to all vocations then we would find that the percentage of persons in construction occupations would be either the same percentage as all gainfully occupied or at least very close to it. This is not the case in the Province of Quebec where  $3\frac{1}{2}$  percent more skilled construction craftsmen are living than the proportion of all gainfully occupied.

In British Columbia 8.77 percent of construction craftsmen were residing as against 10.19 percent of all gainfully occupied. It is an interesting feature that in spite of a comparatively extensive construction activity in the province of British Columbia, the percentage of construction workers is below the percentage of all gainfully occupied.

The proportion of construction craftsmen residing in other provinces, together with the proportion of all gainfully occupied (males) as given in the National Registration, is shown in Table VI.

In the following it is attempted to show how construction craftsmen would be distributed among the provinces if their residence would be determined by the distribution of the total working population as compiled in the National Registration, 1940. Since some provinces have more construction craftsmen in proportion to their working population than others, they show a net surplus of construction workers. Other provinces, where persons in construction occupations are below the proportion of all gainfully occupied, show a net deficiency (see Table VI).

It must be borne in mind that the distribution of construction craftsmen among the provinces according to the proportion of the total working population is of a rather hypothetical character. It will not be practical to maintain such an ideal distribution for any length of time. What is desirable, however, is an effort to smooth out too great divergencies in the distribution of construction workers. This will mainly depend on an appropriate distribution of construction projects among the provinces. It might well be that the deficiency of construction work in some provinces will have to be made up by federal assistance in order to equalize economic opportunities in provinces where construction work lags behind the level of that of other provinces. (1)

The following provinces show a net surplus of construction craftsmen: Quebec - 6,610; Manitoba - 1,203; Alberta - 675; Saskatchewan - 514; and Prince Edward Island - 406. The other provinces show net deficiencies as follows: Ontario - 4,737; British Columbia - 2,728; Nova Scotia - 1,463; and New Brunswick - 480. The total group of construction craftsmen, which would have to be redistributed, numbers 9,408.

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(1) See Section VI of Preliminary Report II.





FIGURE IV

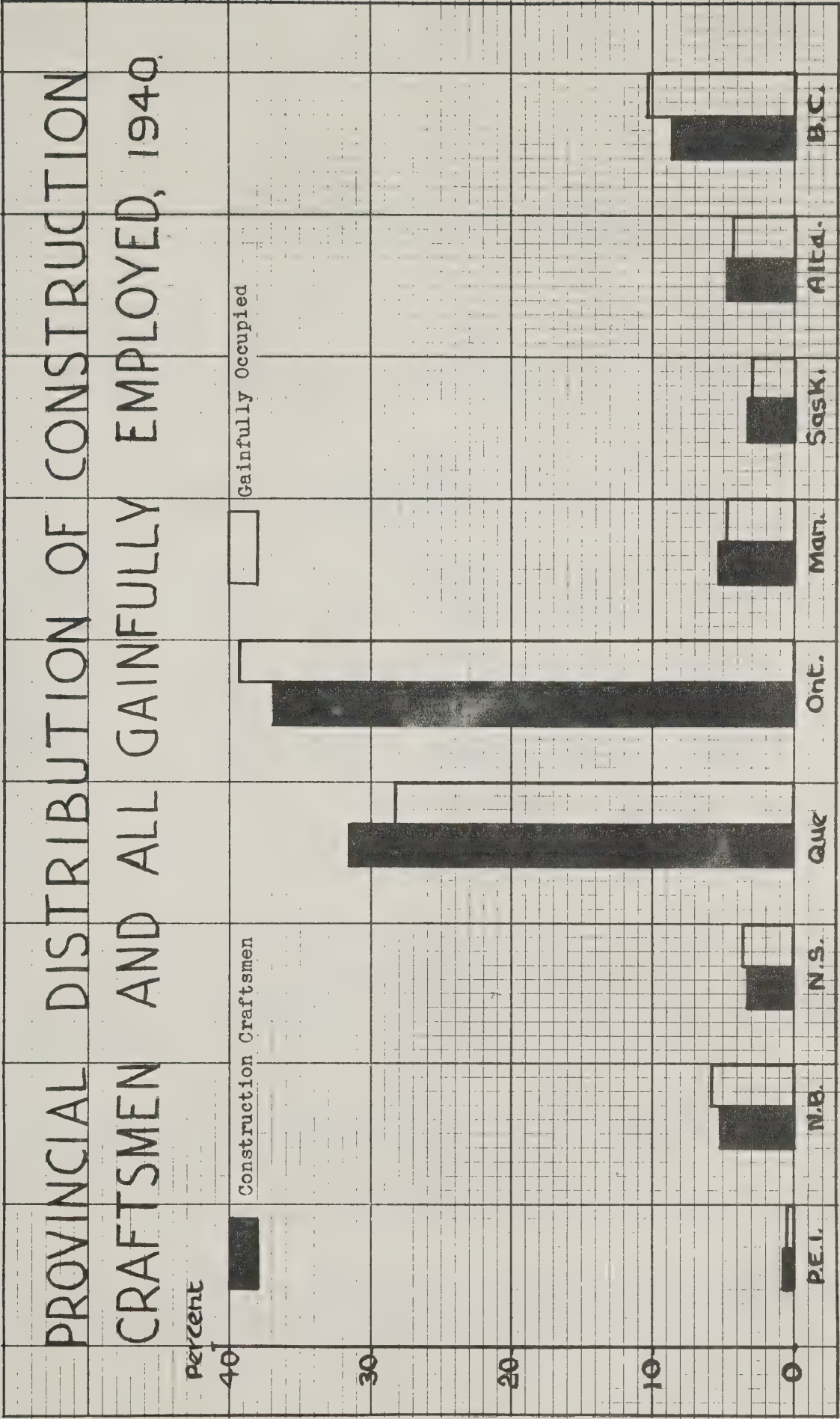


Chart showing a comparison of the distribution of persons in construction occupations by provinces with gainfully occupied recorded in the National Registration, 1940 (Agriculture excluded).





In conclusion it can be said that a more equal distribution of construction craftsmen in the country as a whole may be obtainable if the shift of construction workers from regions where there is not enough work for them to regions where there is a shortage of craftsmen is encouraged. It is a very important function of manpower policy to take care of the varying regional requirements for skilled labour.

TABLE VI  
DISTRIBUTION OF CONSTRUCTION CRAFTSMEN  
AND ALL GAINFULLY OCCUPIED BY PROVINCES  
REPORTED IN THE NATIONAL REGISTRATION 1940 (1)

A	B	C	D	E	F	G
Province	Construction Occupations		Gainfully Occupied Males		Construction occupations according to percent in E.	Net Surplus (+) Net Deficiency (-) Number
	Number	Percent	Number	Percent	Number	
Prince Edward Island	1,385	.73	5,720	0.51	979	+ 406
Nova Scotia	9,877	5.15	66,650	5.91	11,340	- 1,463
New Brunswick	6,312	3.29	39,926	3.54	6,792	- 480
Quebec	60,757	31.66	318,155	28.22	54,147	+ 6,610
Ontario	70,919	36.96	444,496	39.43	75,656	- 4,737
Manitoba	10,221	5.32	52,925	4.70	9,018	+ 1,203
Saskatchewan	6,213	3.24	33,454	2.97	5,699	+ 514
Alberta	9,367	4.88	51,100	4.53	8,692	+ 675
British Columbia	16,824	8.77	114,881	10.19	19,552	- 2,728
Canada	191,875	100.00	1,127,307	100.00	191,875	-----

#### Regional Distribution of Construction Craftsmen

The question is often asked where the majority of construction workers is employed, whether in metropolitan areas, in cities or in rural areas and small communities. The answer to this question is not a simple one because of insufficient data in the Population Census.

For the purpose of offering a more complete picture than the Population Census provides, original calculations have been made, based on the employment reports published monthly by the Dominion Bureau of Statistics for firms which employ fifteen or more employees.

Persons in construction occupations were differently classified in

(1) Table compiled from "Specialized Occupations, National Registration, 1940", pp.1,23,34,35,46,47,58,59,70 and 71. Yukon and Northwest Territories are not included. The statistics shown in Column D and E refer to males only.



the 1921 and the 1931 Census. The Dominion Bureau of Statistics made an effort to reclassify occupational groups for the 1921 Census, on the basis of the 1931 occupational grouping. For the purpose of comparison of the 1931 figures with the 1921 figures several adjustments of the 1931 statistics have had to be made. (1)

There were 73,503 construction craftsmen reported to be residing in twenty-seven cities which had a population of 20,000 and over in 1921. The number of construction craftsmen rose during the decade following 1921 to 102,011 in these twenty-seven cities. This is an increase of 28,508 men, or 38.8 percent, over the 1921 level. During the same period the number of construction craftsmen in the whole of Canada increased from 162,291 in 1921 to 203,066 in 1931. This represents an increase of 40,775 persons, or 25.2 percent, over the 1921 level. Thus it becomes clear that in the decade 1921 to 1931 the number of construction craftsmen in cities of 20,000 population and over increased at a greater pace than in the whole of Canada.

In 1931 there were approximately 30,000 construction craftsmen in Montreal, 19,000 in Toronto, nearly 9,000 in Vancouver and about 7,000 in Winnipeg. The numbers in other cities ranged between 4,694 in Hamilton and 586 in Peterborough (see Table VII).

In cooperation with the Dominion Bureau of Statistics it was possible to obtain a more refined regional distribution of persons gainfully occupied in the construction industry at the beginning of June 1942. The reports made by firms having fifteen or more employees were analyzed, and the location of construction workers in metropolitan areas, medium-sized cities, small cities and rural and small communities was determined. As metropolitan areas were defined large cities with a population of over 100,000; medium cities were considered those having a population of 15,000 to 100,000; small cities were classified as those having a population of 1,000 to 14,999; rural areas and small communities were classified as regions having a population of less than 1,000. Construction workers residing in cities but working in rural areas were included under "rural areas and small communities". Also included in this group were construction workers temporarily living in rural areas but employed by firms whose head offices were in cities. It is important to bear in mind that the above classification of urban and rural areas was arbitrary. It was not possible to draw an accurate distinction between those working in small cities and those working in rural areas and small communities since the Dominion Bureau of Statistics recorded a number of persons as "unlocated in province". Persons under this heading were included in the grouping of rural areas and small communities. It may, however, well be that a considerable proportion of those reported as "unlocated in province" may have been living in small cities (see Figure V).

Persons employed by firms having fifteen or more employees included construction craftsmen, semi-skilled and unskilled construction workers and salaried personnel.

The statistics include construction work undertaken by the railway companies. Employment statistics gathered from reports of firms employing fifteen or more persons offer an entirely different picture from that of the Construction Census. It is clear that large firms employing a great number of workers are better equipped to undertake large construction projects in districts outside of metropolitan areas and cities. Construction undertaken by Railway Companies, which plays an important part, is mostly undertaken outside urban areas. Persons doing construction work for Railway Companies live, therefore, mostly in small cities and other small communities. Regional distribution of workers employed in road building, air-field construction, electrical development and other large scale projects undertaken

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(1) See "Occupational Trends in Canada, 1891-1931", a bulletin published by the Dominion Bureau of Statistics, Ottawa, 1939. Table VII, pp. 12-15.





FIGURE V

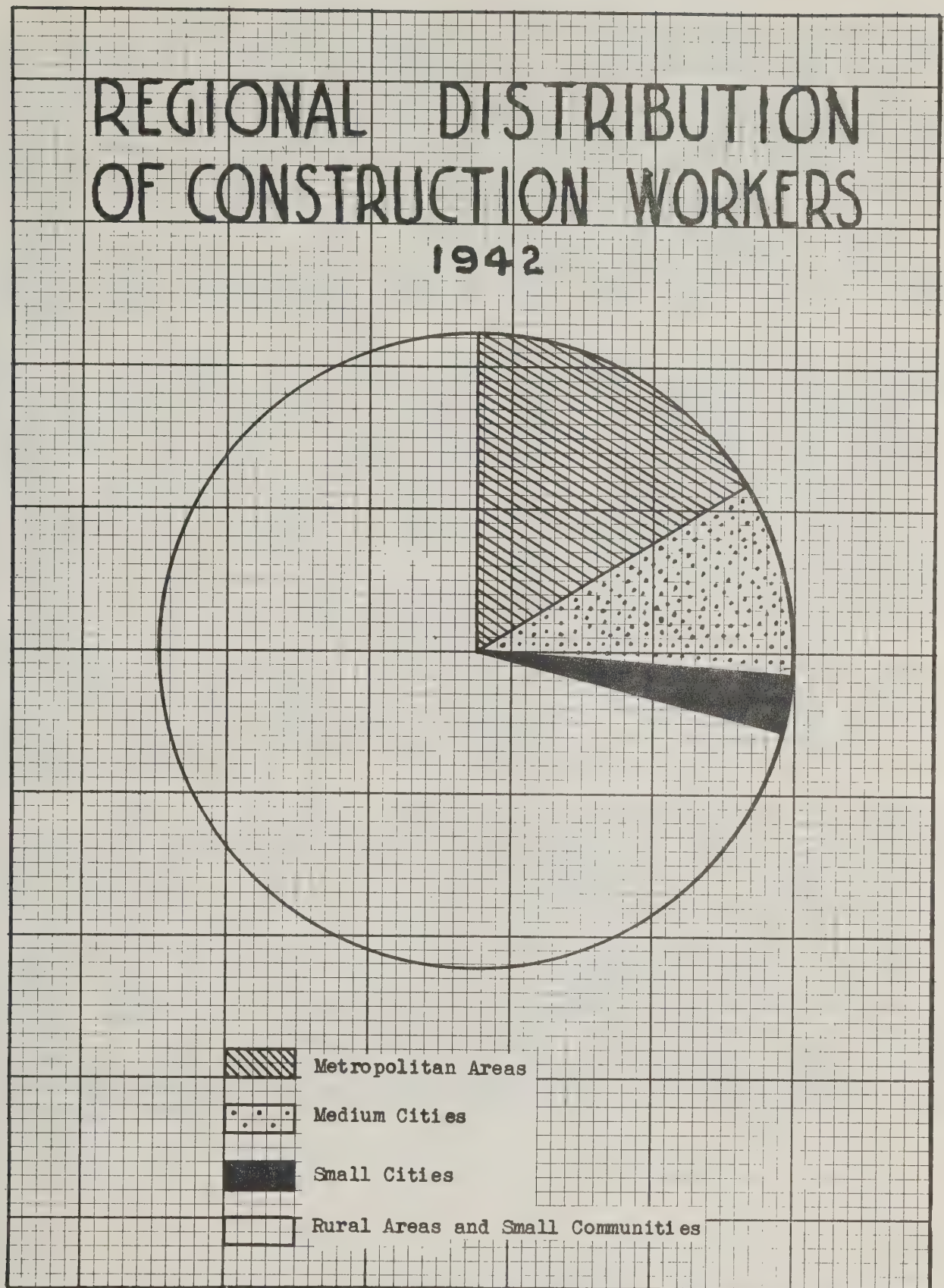


Chart showing regional distribution of persons employed by firms engaged on construction work (including railway companies) with fifteen or more employees at the beginning of June 1942. Metropolitan areas: population over 100,000. Medium-size cities: population-15,000-100,000. Small cities: population - 1,000-14,999. Rural areas and small communities: population less than 1,000. Construction workers residing in cities but working in rural areas have been included in this group. Also included are construction workers temporarily living in rural areas but employed by firms whose head offices are in cities. It may well be that a considerable number of persons reported as living in rural areas and small communities may be living in small cities. Because of the considerable proportion of workers reported by the Dominion Bureau of Statistics as "unlocated in province" it is not possible to draw an accurate distinction between those working in small cities and those working in rural areas and small communities.





outside the big cities is similar to that of construction workers engaged on railway work.

A total of 1,471 firms engaged in construction reported of having 155,035 persons in employment during the last week of May 1942. Of the total working force 28,109, or 18.06 percent were residing in metropolitan areas (see Table VIII and Figure V); 13,650 or 9.03 percent lived in medium-sized cities; the balance of 113,276 or 72.91 percent lived in small cities and in rural areas including small communities. A breakdown is available of persons in small cities (1.94 percent) and in rural areas and small communities (70.97 percent). This breakdown, however, cannot be considered as accurate because of the lack of detailed information in the reports made to the Dominion Bureau of Statistics. The above analysis shows quite clearly that persons employed by large firms engaged in construction are shifted from job to job and, therefore, reside mostly in small cities with a population of less than 15,000 and in rural areas.

The sample of the 1941 Census provides some information on the urban and rural distribution of persons gainfully occupied in construction industry. Of the total strength of 220,600 persons gainfully occupied in construction industry about 29 percent or 63,200 were residing in rural areas and about 71 percent or 157,400 were residing in urban areas. It should be borne in mind that a comparison of this urban and rural classification is not possible with the classification contained in the analysis of reports made by firms having fifteen or more employees. The classification of metropolitan areas, large cities, small cities and rural areas and small communities in the latter study is entirely different from the Census classification of urban and rural areas. The Census, for example, includes as urban incorporated towns, irrespective of their size. This means that small communities numbering no more than about 300 people will be counted in the Population Census as urban if they are incorporated. According to the classification used in the analysis of reports of employers having fifteen or more employees a small city was considered one with at least 1,000 inhabitants. Furthermore, the employment statistics cover only one section of the construction industry while the census covers the industry as a whole.

Of the total working population numbering approximately 4.2 million in 1941 about 2.4 million or 57.3 percent worked in urban areas. The remaining 1.8 million or 43.7 percent lived in rural areas. It is an interesting feature that the proportion of construction craftsmen living in urban areas (71 percent) is considerably greater than the proportion of the total working population (57.3 percent). This preponderance of construction craftsmen in urban areas is equalized by the comparative ease with which construction workers move from urban areas when they are offered a good wage elsewhere. Although they do not change usually their permanent residence, construction craftsmen have proved on the whole quite willing to leave the cities and take up work in the outlying districts. This statement has to be supplemented by the fact that the majority of common labourers employed on construction work in outlying districts is generally recruited locally while craftsmen are brought from the nearest urban centres.





## II. THE CONSTRUCTION APPRENTICE

According to the terminology of the Ontario Apprenticeship Act of 1937 a construction apprentice is a minor of at least 16 years of age who enters into a contract of service whereby he is to receive from or through his employer, in whole or in part, training and instruction in a specified number of construction trades. Construction trades with apprenticeship regulations include bricklayers, carpenters, electricians, masons, painters and decorators, plasterers, plumbers, sheet metal workers and steam fitters. The Ontario Apprenticeship Act also covers three other trades, namely, motor vehicle repairs, barbers and hairdressers - occupations which are not of concern for the present study.

It has repeatedly been emphasized by representatives of the construction industry and of organized construction labour that the construction labour force in Canada has been recruited to a great extent by immigration and that only a very small percentage has been trained in this country. Statistics available in the 1931 Population Census show that this belief is not entirely based on facts.<sup>(1)</sup> Of the total of 203,000 persons in construction occupations reported by the Dominion Bureau of Statistics about 129,000 were born in Canada. This means that only 74,000 or 36.4 percent of the total number of persons in construction occupations were born outside Canada, the majority of whom have learned their trades before coming to this country. This is a most interesting fact. It means that even though there has been little formal apprenticeship training in this country, a great number of men have picked up their trade just by doing the work required for a number of years. The question arises whether this particular development in Canadian training methods should not be taken into account when considering a post-war training programme of building mechanics. This would mean an endorsement of the principle of apprenticeship without adhering too strongly on the rigidity of formal apprenticeship. The implication of such a scheme is discussed later on in this section.

A conference on problems of the construction industry in 1921, at which representatives of industry and labour took part, emphasized the scarcity of skilled construction craftsmen and the lack of construction apprentices at a time when building and construction received new impetus after the conclusion of the last war. It was felt that the best way to establish a proper apprenticeship training system in Canada was to secure the cooperation of the public authorities, employers and employees. It was, however, not before 1928 that an Apprenticeship Act was put into operation in the province of Ontario. Registration of apprentices in Ontario commenced in June 1928. The next province to take such a step was British Columbia where an Apprenticeship Act was introduced in 1936. The Apprenticeship Act for the province of British Columbia is based on the same principles as the Ontario Apprenticeship Act but it differs in details.

For a better understanding of the apprenticeship situation in Canada a quantitative analysis is necessary. Such an analysis, however, encounters great difficulties because of the lack of reliable data available. Before the Ontario Apprenticeship Act was introduced there was no agreement as to the definition of an apprentice. No effort was made to keep track of those entering construction trades as apprentices, completing their training or leaving their occupation before the training was completed.

In the following it is attempted to give a quantitative idea of construction apprentices in this country by presenting statistics available in the Population Census 1931, and of construction apprentices registered in the provinces of Ontario and British Columbia.

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(1) Dominion Bureau of Statistics: Census 1931, Vol. VII, Table 44, p. 316.





### Construction Apprentices in the Light of the 1931 Census

When the Dominion Bureau of Statistics undertook, in co-operation with the Department of Labour, a classification of construction apprentices in its 1931 Census, it experienced great difficulties. It was not possible to classify as construction apprentices all those in the age groups of 10 to 21, who gave their occupation as construction trades. The Dominion Bureau of Statistics endeavoured to solve the problem by distinguishing between apprentices and helpers according to their remuneration. Since these remunerations varied locally a complicated system of rating was used. Thus, an approximate picture of the number of apprentices in construction trades was established. Since there was no possibility of checking the validity of the figures contained in the Population Census 1931 - there are no statistics on construction apprentices available prior to 1931 - the Dominion Bureau of Statistics decided to discontinue this separate classification. In the 1941 Census construction craftsmen and apprentices will be grouped together.

The Population Census 1931 reports 7,163 construction apprentices grouped into seven trades (See Table IX). Construction craftsmen in these seven trades (brick and stone masons, carpenters, electricians and wiremen, painters, decorators and glaziers, plasterers and lathers, plumbers, steam fitters and gas fitters, sheet metal workers and tinsmiths) numbered 172,789. Construction apprentices represented 4.15 percent of the total number of construction craftsmen in these seven trades. In other words, there was one construction apprentice for every 24 construction craftsmen.

A comparison with British conditions is of interest. The ratio of adult construction craftsmen to "apprentices, learners and improvers" under 21 years was 5.2 for England and Wales and 3.3 for Scotland. (1) The age grouping in the Population Census for Canada 1931 is not exactly the same as the age grouping in the Census for England, Wales and Scotland. Nevertheless it is possible to estimate approximately the number of apprentices, learners and improvers under 21. They numbered about 15,000. Comparing persons in construction occupation of these age groups with adult construction craftsmen numbering approximately 188,000 we find that the proportion of adult construction craftsmen to apprentices, learners and improvers under 21 years was 12.5 for Canada. This ratio has to be qualified by the fact that standards of craftsmanship in Great Britain and Canada differ to some extent. Some men regarded as craftsmen in Canada would fail to get recognition as such in Great Britain. Therefore, allowance has to be made for the more liberal interpretation of construction occupations in the Canadian Census. It seems that a proportion of 10 adults to 1 junior for Canada would provide a more comparable picture with British conditions than the statistically correct ratio of 12.5 to 1 (see Figure VI). In viewing the ratios of 3.3 for Scotland, 5.2 for England and Wales and 10 for Canada it becomes apparent that Canada has not been able to induce a sufficient number of young men to enter construction trades.

The construction industry has shown considerable concern with regard to the lack of enthusiasm to enter construction trades. Recently a request was made by the "Joint National Conference of the Construction Industry of Canada" for appropriate measures to secure a proper program of apprenticeship training. This conference adopted unanimously the following resolution:

"The sudden stimulation of industry because of the war, and its urgent demands for mechanics, brings to us forcibly a realization of the mistake of not making more definite efforts to carry on any established method of the training of youth to meet the requirements of industry.

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(1) Statistics taken from 1931 Census for England, Wales and Scotland. See "Training and Recruitment in the Building Industry", a report prepared by the Nuffield College (England), October 1941.

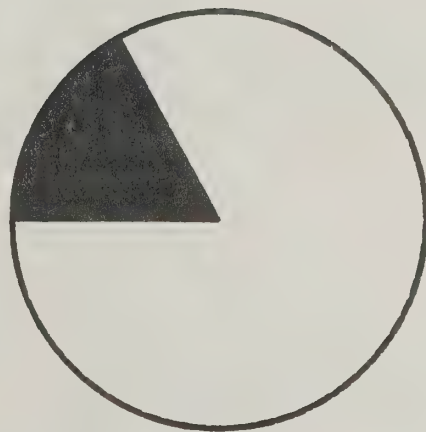




FIGURE VI

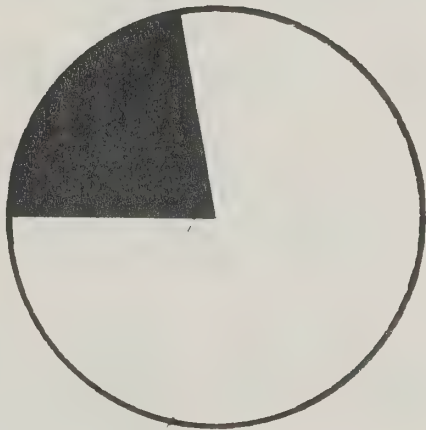
# PROPORTION OF JUNIOR TO ADULT CONSTRUCTION CRAFTSMEN, 1931.

ENGLAND and WALES



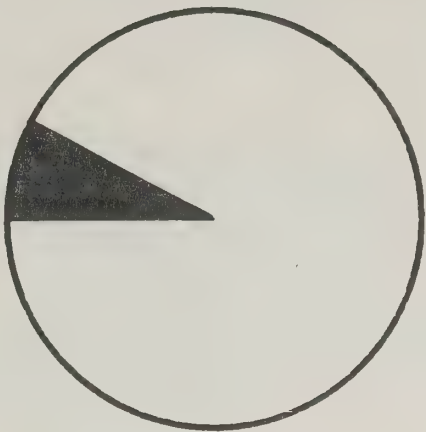
Ratio, 1 : 5.2

SCOTLAND



1 : 3.3

CANADA



1 : 10

■ Junior  
□ Adult

Chart showing a comparison of apprentices, learners and improvers under 21 years (British terminology) with adult construction craftsmen in England and Wales, Scotland, and Canada. (The Canadian figure is adjusted for purposes of comparison).



"We cannot under-estimate the unfortunate consequences ultimately involved in our forced efforts to provide semi-skilled men to meet emergency conditions, and we are finding that we are unable to accomplish our purpose by any emergent method or partial system of training.

"The present methods of intensified training by short mechanical courses for a period of a few months is not desirable and cannot be of any lasting advantage or assistance to the building industry as forced methods of training do not permit of instruction in the fundamental basis of workers in building trades.

"Those systems of specialization attempting now as never before to produce skilled workmen will result in a serious economic problem. Quick training of building trade mechanics has proved inadequate because it does not provide the time required for men to equip themselves as competent craftsmen.

"Well-regulated and controlled methods of training are exceedingly important factors and cannot be ignored if the future needs of industry are to be provided for and the experience of employers of labour in the construction industry demands that lengthy and systematic training is necessary in equipping the youth for taking his place in the industry.

"A new consciousness is apparent among the leaders of industry to the desirability of intensifying our efforts to overcome the present emergent methods by again attempting to have properly qualified systems of apprenticeship put into operation.

"We request that the Federal Government encourage and promote technical education.

"We endorse the principles of the Ontario Provincial Apprenticeship Act and are of the opinion that properly enforced and extended to other provinces this would provide a sound foundation for meeting the future requirements of trained skilled workers in our industry." (1)

Similar in tenor is contained in a resolution adopted on the 25th Annual Conference of the Canadian Construction Association (January 20-22, 1943) asking all provinces to follow the example of Ontario and British Columbia by making appropriate provisions for the training of construction apprentices. The following is the text of the resolution:

"RESOLVED that WHEREAS as there is an urgent necessity for training mechanics throughout the Dominion, and as the apprenticeship system, as carried out in Ontario and British Columbia, has met with a considerable amount of success, it is recommended to the Management Committee that all other provinces be asked to consider the advisability of setting up apprenticeship training for the construction industry." (2)

#### Construction Apprentices in Ontario

There are reliable statistics available as to the number of apprentices registered in the Province of Ontario since the beginning of June 1928. During the period June 1928 to December 1942, 2,595 apprentices were registered with the Ontario Department of Labour (see Table X). This apprenticeship force consisted of 236 bricklayers, 14 masons, 318 carpenters, 195 painters and decorators, 135 plasterers, 770 plumbers, 199 steamfitters, 248 sheet metal workers and 480 electricians (see Figure VII).

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(1) "Proceedings of Joint National Conference of the Construction Industry of Canada", held under the auspices of the National Labour Supply Council at Ottawa, February 10-12, 1941, "The Labour Gazette", February 1941.

(2) "Daily Commercial News and Building Record", January 25, 1943, p.5.





FIGURE VII

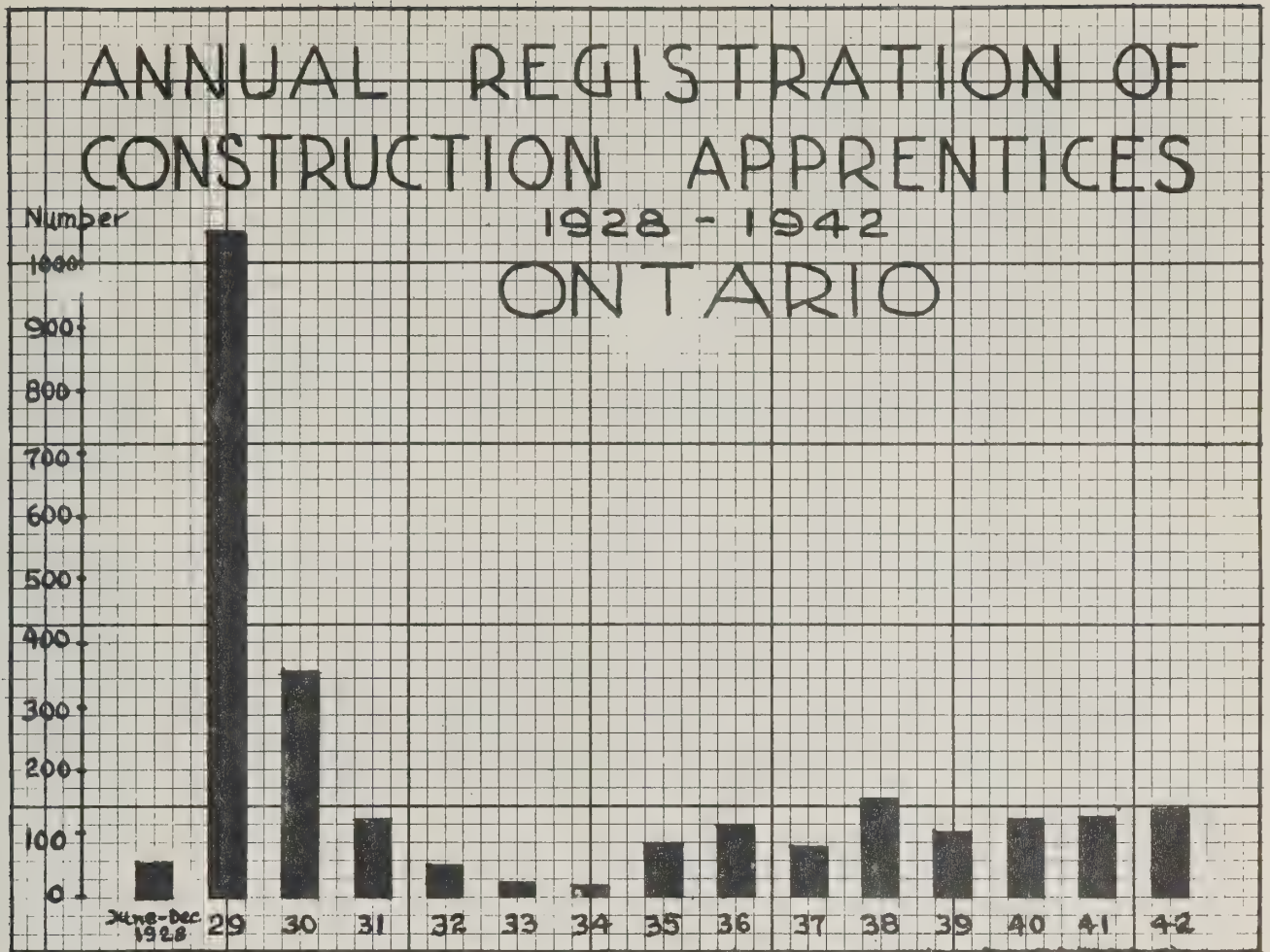
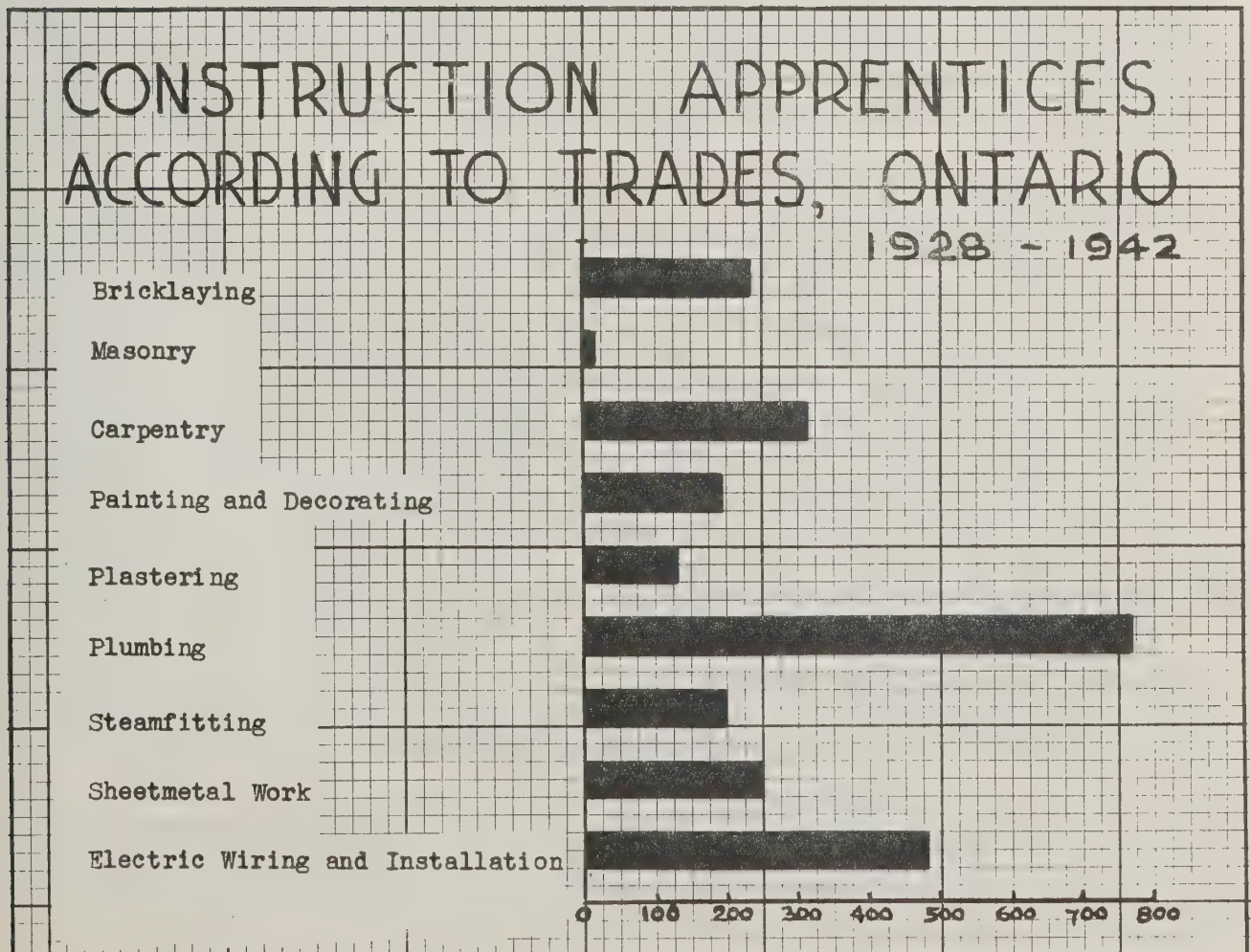


FIGURE VIII







The number of apprentices registering annually show very vividly to what great extent sound conditions in the construction industry can encourage young men to enter the construction trades as apprentices. In 1929, the boom year of construction, 1,070 construction apprentices were registered. This means that in one year about 40% of the total number of apprentices entered construction trades while 60 percent are distributed for the remaining 13½ years. In 1934 registration of new apprentices reached its lowest point. Only 22 young men entered the construction trades as apprentices. Since the depression there has been very little to interest young men in entering the construction trades. This is shown by the number of registrations since 1935. There were 87 applicants registered in 1935, 108 in 1936, 81 in 1937 and 152 in 1938. The war brought a drop in the number of construction apprentices, 100 being registered in 1939, 117 in 1940, 122 in 1941 and 132 in 1942 (See Table X and Figure VIII).

It is of interest to compare the number of apprentices registered under the Ontario Apprenticeship Act with the number of construction craftsmen in this province as given by the National Registration, 1940. An approximate number of apprentices serving in 1940 can be estimated by assuming the duration of the apprenticeship as five years and disregarding any apprentice who might have discontinued his training. Based on these assumptions apprentices serving in Ontario during 1940 numbered 558. Since there were 70,919 persons in construction occupations reported by the National Registration in Ontario it appears that only approximately 0.8 percent of this total labour force was made up by apprentices. If we assume that not more than one-half or approximately 35,000 persons in construction occupations were working in the construction industry - the rest consisting of construction craftsmen working in other industries - then we find that only 1.6 percent of the total number of construction craftsmen working in the construction industry was made up by apprentices. This means that there was one apprentice for 126 construction craftsmen, if the total skilled construction labour force in the Province of Ontario is considered. If only those construction craftsmen working in the construction industry are considered, then we find that there was one construction apprentice for every 63 construction craftsmen.

The question arises whether a sufficient number of persons desiring to become construction craftsmen will be available once legal, administrative and economic provisions have been made to encourage youths to enter the proper construction training. The best answer to this question can be found in a short analysis of persons reported in construction occupations below the age of 21 years.

The Dominion Bureau of Statistics reports for 1941 that there were 74,340 persons in construction occupations in the Province of Ontario. (1) Age group classification for persons gainfully occupied in construction occupations for the Province of Ontario is not available yet for 1941. By using an approximate ratio of persons in construction occupations below 21 years of age established in 1931, it is possible to estimate the number of persons in construction occupations in 1941 below the age of 21 years subject to certain qualifications. Persons in this age group would number approximately 5,000. This figure can only be regarded as indicative of the number of persons in construction occupations under 21 years of age. It must be borne in mind that not all persons in construction occupations work in the construction industry itself since a number are working in other industries which engage in work not connected with construction but which carry out construction work with their own employees (e.g. mines and logging industry). Furthermore the above figure has to be qualified by making allowance to the ageing process which marks the average construction craftsman of 1941 as compared with 1931. If allowance is made for these qualifications it can be assumed that only half or about 2,500 young men in construction occupations were working in the construction industry. (According to the Dominion

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(1) This figure is based on a 10 percent sample. See Bulletin 2 on "Occupations and Earnings" of the Eighth Census of Canada 1941.





Bureau of Statistics' classification common labourers are not included under the heading of persons in construction occupations). Apprentices registered under the Apprenticeship Act in the Province of Ontario numbered in June 1941, when the Population Census was taken, between 500 to 600. It thus follows that construction apprentices in the Province of Ontario made up only about 20 to 25 percent of the total number of persons in construction occupations under 21 years of age while the remainder of 80 to 75 percent were gainfully occupied in construction without undergoing the burden of apprenticeship.

Because of the informal conditions of apprenticeship in this country the majority of young men entering construction trades believe that they can pick up a trade without undergoing the proper apprenticeship training. Their belief is confirmed by the fact that a man who has been working as a helper for a few years in a construction trade might be accepted in another province than Ontario and British Columbia by a local of a construction trade union as a member and thus be able to claim that he is a qualified construction craftsman. The result is a dilution of the construction labour force. It is quite clear that such a practice would become impossible if proper apprenticeship regulations existed in all provinces and only those persons had the right to be called construction craftsmen who have undergone a proper and prescribed apprenticeship training. In other words, it appears desirable not only to secure apprenticeship regulations in all provinces of Canada but also to introduce a licensing system of construction craftsmen. Such a system would certainly be welcomed by the construction industry and by the trade unions since it would provide properly trained construction craftsmen and would make further dilution of the construction labour force impossible.

#### Construction Apprentices in British Columbia

An Apprenticeship Act was introduced in British Columbia in 1936. During the period 1936-1942 inclusive 571 apprentices were registered with the Department of Labour of British Columbia. Of these, 190 apprentices completed their apprenticeship while 381 are still serving.

Hamilton Crisford, the Director of Apprenticeship in Vancouver, comments on the experience of his department with regard to construction apprenticeship training in the last seven years in the following way: "The principal difficulty to overcome in the construction industry in this Province was to maintain continuity of employment and training. By a careful selection of both employers and apprentices, together with a system of temporary transfers during slack periods, we have been very successful in this regard and although the number of lads turned out in some trades is small, the aggregate is large enough to establish the system on a sound foundation. We have had very few failures due to lack of proper training facilities; there again our success in this regard can be almost entirely credited to selection and I cannot stress too strongly the desirability of maintaining selection in a permanent place in any rehabilitation measures contemplated."

For the purpose of estimating the proportion of construction apprentices to adult construction craftsmen it can be assumed that there were approximately 500 construction apprentices serving in 1940. The National Registration reports 16,824 persons in construction occupations in British Columbia. It follows that about 3 percent of the total construction labour force was made up by construction apprentices. This means that there was one construction apprentice for 34 adult construction craftsmen. Assuming that one-half of the construction craftsmen were working in the construction industry then we find that there was one construction apprentice for 17 construction craftsmen. It appears that the proportion of apprentices to construction craftsmen is more favourable for the Province of British Columbia than it is for Ontario.

#### Duration of Construction Training in Ontario and British Columbia

Legal provisions in the Province of Ontario and British Columbia request a period of apprenticeship varying between three and five years depending on the trade. The following table gives a summary of the period of apprenticeship training required in these two provinces.





TABLE XI

DURATION OF CONSTRUCTION APPRENTICESHIP TRAINING  
IN ONTARIO AND BRITISH COLUMBIA (1)

Trade	Ontario Number of Years	British Columbia Number of Years
Brick Laying	4	4
Masonry	4	4
Carpentry	4	4
Painting & Decorating	4	4
Plastering	4	5
Plumbing & Steamfitting	5	5
Sheet Metal Work	4	5
Electric Wiring & Installation	4	3-5

Apprenticeship in the Post War Period

Apprenticeship in the rigid form as known in Great Britain and on the Continent of Europe has not proved to be a success in this country in spite of commendable initiative taken by the provinces of Ontario and British Columbia in the direction of formal apprenticeship.

The question arises what could be done to mend these conditions. There seem to be **two ways**. One is to continue the traditional path of formal apprenticeship as in practice for centuries. It would mean the introduction of apprenticeship regulations in the whole of Canada similar to those already existing in Ontario and British Columbia. It might also involve the licensing of construction craftsmen in order to avoid unqualified men remaining in an occupational field that requires a minimum standard.

Another way in approaching the problem requires perhaps some imagination and an effort to look ahead. The progress of building techniques has introduced steadily new materials and has advanced the standard of pre-fabrication. Thus, it can be expected that in the future on-site employment in certain types of construction will be reduced on one hand, while on the other hand new types of skilled men will be required to handle building operations. To meet this demand for skilled mechanics, it may become necessary to train general building tradesmen who would be in a position because of their previous training to handle more than one operation on a construction project. In other words it seems advisable to train building mechanics by adopting the principles of apprenticeship without the rigid formalities hitherto inherent in apprenticeship training. In practice this would mean that young men would be trained in technical schools in order to suit the requirements of the construction industry. Due consideration would have to be given to technological changes which take place continuously in the construction field. While attending technical schools opportunity

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(1) Table compiled from information supplied by the apprenticeship branches of the Departments of Labour in Ontario and British Columbia.





should be accorded to these young men for applying in practice what they had learned in college. There is hardly any doubt that the construction industry will welcome qualified building mechanics who can be used in a wider field than it was hitherto possible with the specialized construction craftsmen. A more diverse use of the building mechanic will make a reduction of seasonal unemployment possible because the new type of general building mechanic will not object to performing indoor operations entirely different from out-door operations if he is qualified to carry out the task.

Together with the training of building mechanics in technical schools, courses could be introduced in colleges and universities for the purpose of training young men and women for responsible position in the construction industry. Steps in this direction have already been taken in the United States. There, the building industry, in co-operation with colleges and universities, has segregated light construction - home building, structural improvements and farm building - from the construction industry as a whole for the purpose of special planning and educational treatment. A number of colleges and universities in the United States have for the first time in history organized and set up curricula with appropriate degrees designed specifically to train young persons for careers in the light construction field. Mr. Arthur A. Hood comments on this recent development: "For the first time in history young men or women can decide upon and be trained for a career in our second largest industry. They can enter college with the assurance that they will receive a specific training which will adequately prepare them for a successful life and profitable livelihood in the industry. It will also give them a wider and more thorough educational background for such success than anyone engaged in the industry at the present time possesses". (1)

According to Mr. Hood the following answer can be given to the question, why has not the building industry developed a training programme adequate to its needs: "The building industry is made up of 100 or more branch industries - none of which has a dominating part of the whole. It is the most heterogeneous of all industries. The situation is further complicated by the fact that building projects are so bulky that they must be manufactured locally, usually on the site where the building is to stand. In most other industries a few well trained minds can organize, integrate and coordinate the production forces at a point of centralized manufacture. The distributive organization too can customarily be managed from the same central point. While just a few men with such organizing ability are needed in the average industry, the building industry needs them by the thousands because of its almost total decentralization and diversification. The educational problem in the building industry is further complicated by the complexity of its products and services. A new home, for example, has 30,000 parts contributed to by a hundred industries and fitted together on the site by a score of different types of labour. The problem of building an adequate program of study to provide educationally for the varied career opportunities in the building industry is as involved as the field of agriculture or any one of the professions". (2)

Mr Hood does not approach the whole problem of training of men for the construction industry since he gives no consideration to the training of building mechanics who are not able to enter colleges. However, the proposal of educating college graduates for tasks in the construction industry is certainly valuable from the point of view of supplementing the construction labour force trained in technical schools and by the industry itself.

Mr. Hood believes that in the post-war period considerable opportunities in the construction field will be open to young persons who have received a proper training. Since a considerable building activity can be expected in Canada after the war, there is hardly any doubt that what Mr. Hood believes to be true for the United States will be equally true for Canada.

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(1) Arthur A. Hood: "New Career Opportunities in the Building Industry for High School Graduates Planning to Enter College", New York, 1942, p. 4.

(2) Ibid.; p. 9.





Summing up one might say that it is not easy to forecast what types and what number of construction craftsmen will be required in the post-war period. One thing, however, seems to be clear. A considerably modified approach of the problem of apprenticeship training in the country will be necessary if any scheme contemplated should bring the desired effect, namely, to provide a skilled construction labour force in sufficient numbers in order to meet the requirements of building and construction on a large scale after the war.

It is important to realize that the possible need for a new type of building mechanics in the probable expansion of building after this war does not mean that craftsmen trained in orthodox methods are out-dated. On the contrary, it is likely that for some time to come they will form the backbone of the construction labour force, supplemented only by the new type of building mechanics as outlined above. The training of these mechanics does not exclude apprenticeship training on traditional lines; it provides rather an additional skilled labour force which, for a number of reasons, could not be trained in the ways which were customary in Europe for centuries but have as yet not become popular on this Continent.

### Conclusion

It has been endeavoured to throw light on the scarcity of construction apprentices even in provinces like Ontario and British Columbia where the beneficial results of Apprenticeship Acts are generally recognized. Statistics analyzed in this section point out clearly that it is not enough to provide an Apprenticeship Act and an efficient administration charged with coping with the problems of apprenticeship training. What is required in addition to legal and administrative measures is the encouragement to the youths to enter construction trades by assuring them that sufficient employment will be available once they have completed their training. Insecurity has hitherto been the fate of the construction craftsman. His sufferings were greater than those of all other gainfully occupied. On the average, he lost more weeks being unemployed than persons of other occupations. No wonder that young people are hesitant to enter the construction trade. The success of a large scale training programme of construction craftsmen will to a great extent depend on the ability of the public authorities to cope with the problem of great fluctuations in the volume of construction activity in this country. If the construction activity can be kept at a certain level by supplementing private construction by public construction in time of depression, then a comparatively steady field of employment will be secured for the construction craftsman. An offer for steady employment will be the best encouragement which can be given to youths desirous to enter construction trades.





### III. THE SEMI-SKILLED AND THE UNSKILLED CONSTRUCTION WORKER

In addition to construction craftsmen and construction apprentices, there are men employed in the construction industry who have either no skill (common labourers) or who have acquired some knowledge of the construction trade which permits us to call them semi-skilled. The main distinction between these is the wage rate; the common labourer getting the lowest hourly rate, and wages of the semi-skilled construction worker varying between the wages of the unskilled and skilled construction worker. This can, however, be only accepted as a general rule because of the variation of the wage rate in different parts of this country. A carpenter's helper, who by practical work acquires some experience in carpentry (semi-skilled man), might be paid a higher wage in the Province of Ontario than a skilled carpenter in some part of the Province of Quebec. It is because of this regional variation in wage rates that rates alone cannot be accepted as a standard distinction between skilled and semi-skilled construction workers.

Some sources suggest that a classification of construction craftsmen by trade unions be accepted as a standard definition of the skilled construction worker. The reply to that suggestion is that the trade unions have not got a standard classification. Construction trade unions affiliated with the Trades and Labour Congress are supposed to accept only skilled men into their ranks. It may happen, however, that a man who has some knowledge of carpentry applies to the "United Brotherhood of Carpenters and Joiners of America" for membership. One local of this trade union might refuse to accept him stating that his qualifications are not such as to qualify him a skilled carpenter. The same man might be on another job in another town in the week following, apply for membership with another local of the carpenter's trade union and be accepted.

#### Dilution of the Skilled Construction Labour Force

The informality with which recognition as a construction craftsman could be obtained in Canada has definitely contributed to the process of dilution of the skilled labour force. To that has to be added the willingness of a section of employers to let men without any proper training perform certain operations which require the skill of craftsmen. Such a procedure is harmful to the construction trade in two ways: firstly, the work performed is below the standard desired; secondly, the worker claims to have performed a skilled man's job and asks for recognition as a craftsman and for a wage which is higher than his ability warrants. In times of depression when a sufficient number of construction craftsmen was available, the effect of such a practice was not felt; but things have changed considerably since the outbreak of war. It can be expected that a big post-war construction programme will again bring the problem into the foreground.

The existence of the problem of dilution of the skilled construction labour force is strongly felt by both employers and employees. This became clear in the "Joint National Conference of the Construction Industry" (1941) where it was emphasized that the war has brought the entry of a great number of semi-skilled men into the field of skilled construction work. It was agreed during the conference that the dilution of skilled labour by the use of semi-skilled workers is a considerable problem which deserves immediate consideration. It was recommended that an agency be created which, among other problems of labour supply, should consider the problem of dilution of labour in consultation with the National Joint Conference Board of the building and construction industry. (1)

Mr. J.W. Bruce and J.C. Reilly point out in their report to the sub-committee on post-war employment opportunities that men, who have

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(1) Department of Labour: "Proceedings of Joint National Conference of the Construction Industry of Canada", held under the auspices of the National Labour Supply Council, Ottawa, February 10-12, 1941, proceedings published in "The Labour Gazette", February, 1941.





acquired by various means some of the essentials of one of the construction trades, secure employment in times of scarcity by taking the place of skilled construction craftsmen. Construction trade unions take such men into membership quite often, believing that it is better to have these men in their ranks than having them working on their own and harming the skilled trade. Mr. Bruce and Mr. Reilly state that sometimes the trade unions endeavour to adjust these men to the type of work they can do.

One thing becomes clear from the above exposition. There is no nation-wide agreed definition of the construction craftsman. Because there is no definition, dilution of the skilled construction labour force has occurred. This process of dilution will continue, especially in times when the demand for construction craftsmen is greater than the supply, until agreement on the definition of the construction craftsman has finally been reached. This agreement will have to be followed by a nation wide classification of all those claiming to possess some skill in construction trades into two groups, namely, construction craftsmen and semi-skilled construction workers. Such a classification would only be possible if at the same time provisions are made to provide those who have not as yet reached the stage of a skilled construction craftsman with opportunities for additional training enabling them to qualify as skilled men. (Adult apprenticeship and upgrading courses).

#### Ratios of Skilled to Unskilled Construction Workers

When the final figures for the 1941 Census are released they will throw an interesting light on the importance which semi-skilled and unskilled workers have obtained the construction industry. Conditions in 1941 are not comparable with those in 1931, since the former year was the peak year of construction, while the latter was marked by a declining volume of construction due to the depression. Bearing this fact in mind, some indication of the number of unskilled and semi-skilled men employed in the construction industry can be obtained from the 1931 Census. In this year the ratio of skilled (approximately 164,000 persons) to common construction labourers (approximately 76,000 persons) was 68.3 to 31.7.

Useful information on the proportion of skilled men to unskilled is obtainable from a recent survey of employment in the construction industry, which was undertaken by the Department of Munitions and Supply. Construction work undertaken by large firms with fifteen or more employees during the week ending August 1, 1942 was subject of the survey. Railway construction was not included in this survey. Reference to railway construction is to be found in the survey discussed in the following section under "War Construction vs. Civilian Construction".

The summary in Table XII is based on returns covering 124,173 employees. The figures in this table show that war construction has absorbed a considerable proportion of the skilled construction labour force. Of the total number engaged on war construction 47 percent were construction craftsmen as against 25 percent for non-war construction (construction for civilian purposes). This proportion indicates the importance which a post-war construction programme will have as a means of absorbing those construction craftsmen who have hitherto been engaged on construction work connected with the war effort (see Figure IX).

It is important to realize that the distribution of skilled to unskilled workers established in Table XII can only be used if the following reservation is borne in mind. Firms employing fifteen or more employees are usually big contracting concerns. They use modern machinery to a considerable extent and thus replace manual labour wherever they can. It is reasonable to expect construction work undertaken by large firms to show a small proportion of skilled workers compared with the number of unskilled workers and for returns for small contractors and working proprietors to show a considerable proportion of skilled labour and a small proportion of unskilled labour. The Department of Munitions and Supply estimates that during the week ending August 1, 1942 there were another 50,000 to 60,000 workers either



FIGURE IX

# COMPOSITION OF CONSTRUCTION LABOUR FORCE, August 1<sup>st</sup>, 1942

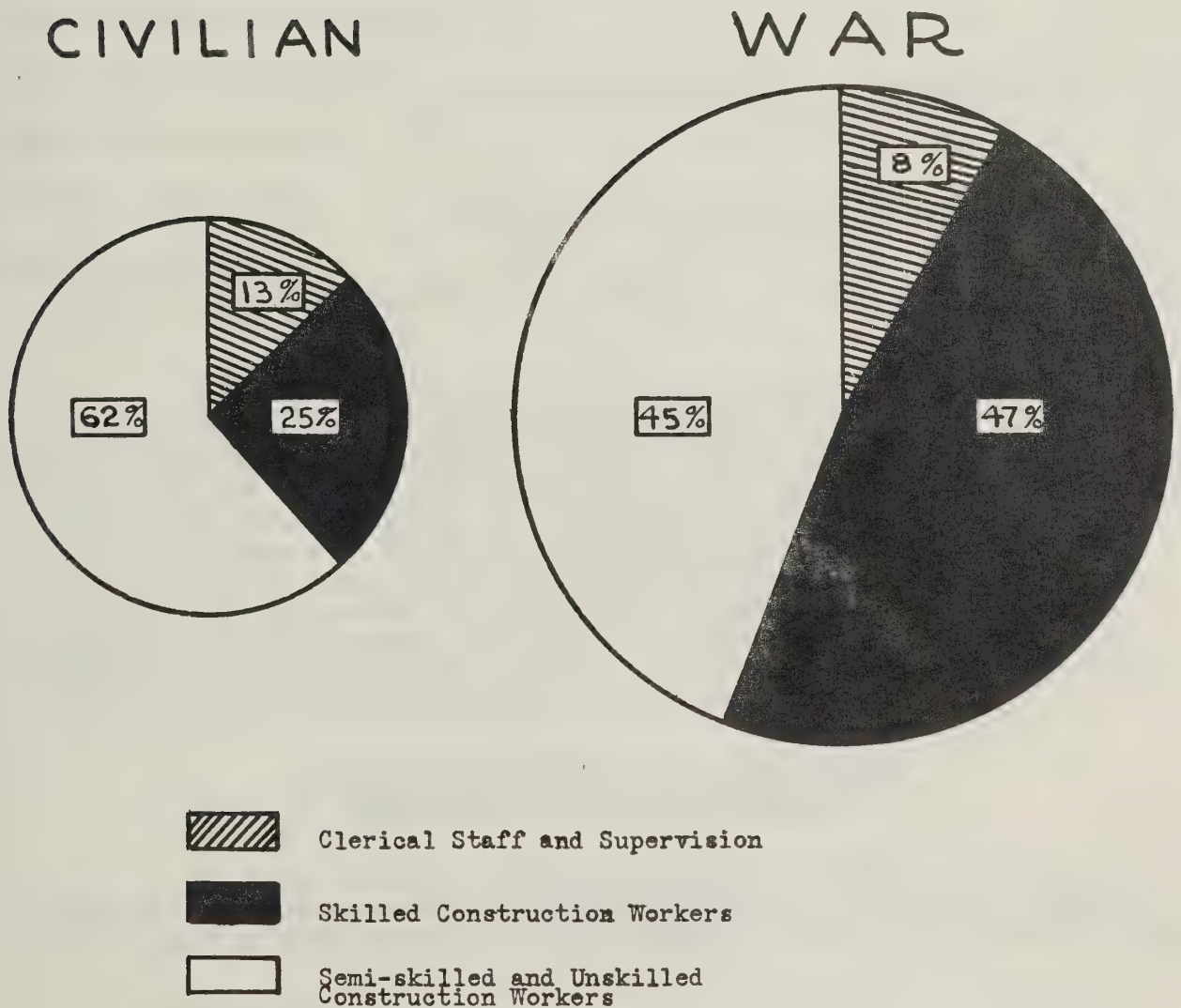


Chart showing the composition of persons employed in construction by firms with fifteen or more employees during the week ending August 1, 1942 classified according to type of construction (war construction - 61.3 percent and civilian construction - 38.7 percent) and according to skill. Chart based on statistics supplied by the Department of Munitions and Supply.





employed by small contractors or working on their own account. The overwhelming proportion of this labour force consisted of construction craftsmen.

TABIE XII

DISTRIBUTION OF SKILLED AND UNSKILLED CONSTRUCTION  
WORKERS FOR WAR AND CIVILIAN CONSTRUCTION. (1)  
August 1942

Type of Construction Work	Supervisors, Inspectors and Office Staff	Skilled Con- struction Workers	Semi - and Unskilled Construction Workers (2)	Total
Percent	Percent	Percent	Percent	Percent
Dominion Government Contracts	9	43	48	100
Wartime Housing Ltd. Projects	5	54	41	100
All Other War Construction	8	50	42	100
Total War Construction	8	47	45	100
Civilian Construction	13	25	62	100
Total Construction	10	38	52	100

Based on the above statistics an estimate can be made as to the possible ratio of skilled construction workers to unskilled employed during the week ending August 1, 1942. The ratio of skilled to unskilled construction workers at that date was approximately 60 to 40. This estimate would include construction workers employed by firms with fifteen and more employees and small contractors with fourteen or less employees and working proprietors (for example a carpenter working on his own account without employees). Comparing this ratio with that of the 1931 Census an increase in the proportion of unskilled and semi-skilled workers and a decrease in that of skilled workers is noticeable. A check upon this estimate will be possible as soon as final figures of the 1941 Census are available.

Definition of Skill in the Light of the  
Census and of Reports by Employers

It may be useful to evaluate the statistics supplied by the Department of Munitions and Supply on the question of definition of skill in the light of data available in the Population Census. Skill qualifications

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(1) Table compiled from statistics supplied by the Economics and Statistics Branch, Department of Munitions and Supply.

(2) Construction apprentices are included as semi-skilled workers. This is one of the distinctions of the above computation from the Census where apprentices are recorded in construction occupations.





as reported in the Census are based on answers by individuals concerned to questions asked by the enumerators. Accordingly, Census figures reflect claims of skill qualifications that would not be approved by trade unions or employers. The inflation of occupational groups in the Census is unavoidable as long as the opinion of the individual is the deciding criterion. The Dominion Bureau of Statistics endeavoured in the 1931 Census to reduce inflation of the occupational grouping in construction by putting men with comparatively low incomes into the group of common labourers. Although adjustments in this regard were made, it can be assumed that a quite substantial marginal group was included in the occupational group of construction in the 1931 Census.

The survey of the Department of Munitions and Supply is based on returns from employers. This fact accounts probably for a better skill qualification than it was possible to show in the Census. Since employers pay employees according to skill, they are more rigorous in the rating of qualifications than their workers. It is mainly for this reason that the survey undertaken by the Department of Munitions and Supply can be regarded as a better indication of the skill composition than the Census. A weak point in the survey is that it relates only to a major sample of construction activity and does not provide a complete picture of the skill composition of the construction industry. Nevertheless, this survey throws interesting light upon the skill qualifications of a major proportion of men employed in the construction industry.

#### Age Composition of Labourers

Registration under the Unemployment Insurance Act 1940 contains recent information on the age groups of common labourers, in which group semi-skilled and unskilled construction workers are included. It can readily be seen that the average labourer is considerably younger than the average construction craftsman. Of the total number of persons in construction occupations registered under the Unemployment Insurance Act, 21.76 percent were 29 years of age or younger as against 48.09 percent for male labourers (see Table XIII and Figure X). Again 78.24 percent of the total number of persons in construction occupations were 30 years of age or older ("not stated" included) as against 51.91 percent for labourers.



FIGURE X

# CONSTRUCTION CRAFTSMEN AND UNSKILLED WORKERS BY AGE GROUPS

March 31<sup>st</sup>, 1942.

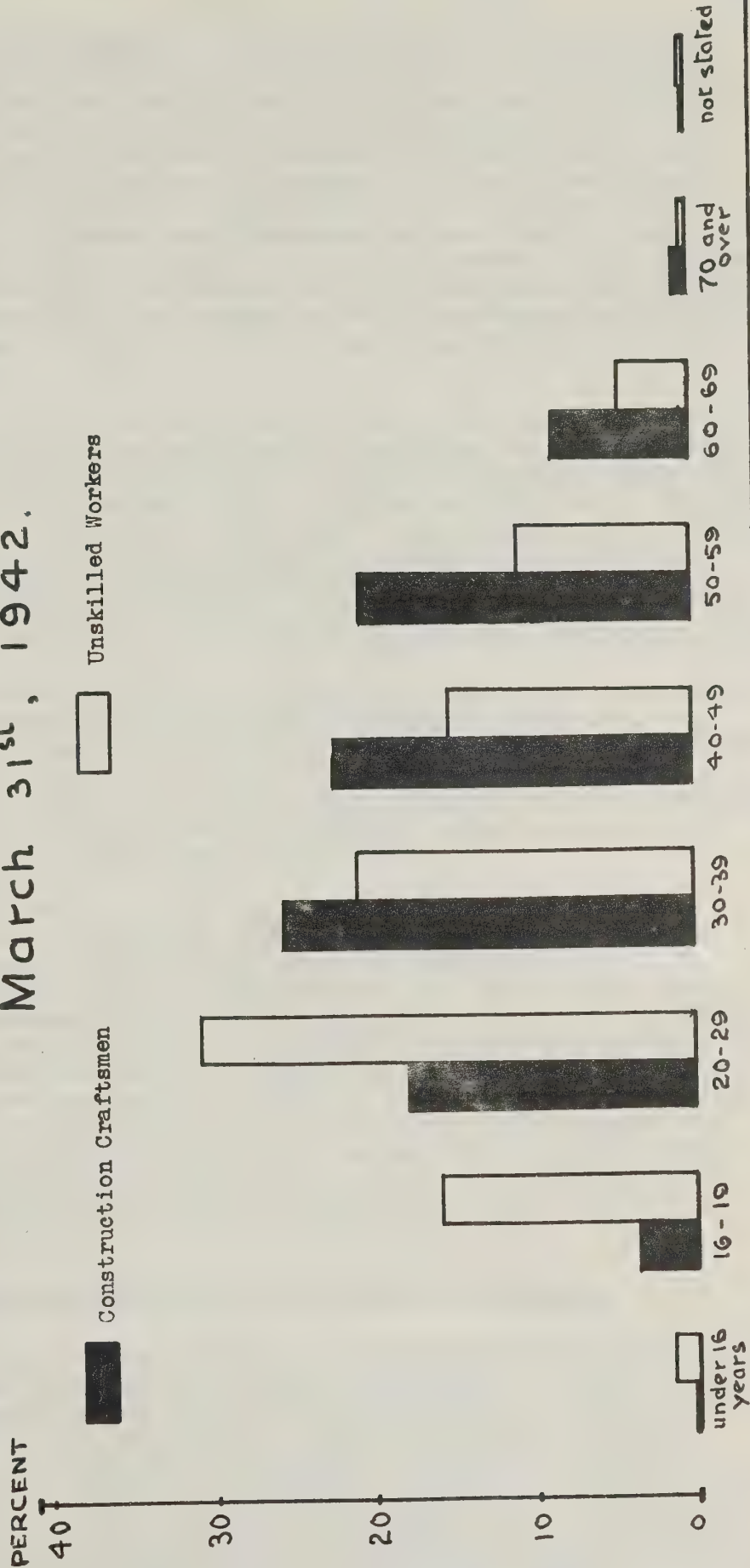


Chart showing a comparison of age groups of persons in construction occupations and labourers based on returns under the Unemployment Insurance Act, 1940, (March 31, 1942).





#### IV. EMPLOYMENT IN THE CONSTRUCTION INDUSTRY

The construction industry provides employment for construction craftsmen and construction apprentices, semi-skilled and unskilled workers, clerical and other professional occupations. The composition of the labour force employed in the construction industry is greatly influenced by technological changes and by the phase of the business cycle during which a construction programme is carried out. For example, the use of huge digging machines and bulldozers will cause a decrease in the use of common labour working on excavation. Increased use of machinery on the site of a large building project will diminish the need for skilled carpenters. The employment factor plays an important role in a depression. For this reason usually such projects are selected as yield the greatest number of man-hours on the site. This consideration does not enter the field of selecting construction projects in times of prosperity.

Some indication of the composition of the labour force serving the construction industry can be obtained from the Population Census 1931. It must, however, be borne in mind that the statistics of 1931 illustrate a period of the down-swing phase of the business cycle. The picture presented by the 1931 Census will be supplemented once the statistics for the 1941 Census are complete. The latter will give a picture of the construction industry as a field of employment at a time when this country experienced a boom in construction. According to Dominion Bureau of Statistics' figures gross value of construction amounted to 390.8 million dollars in 1931 and to 639.7 million dollars in 1941.

There were about 250,000 persons reported as gainfully occupied in the construction industry in the 1931 Census (shipbuilding excluded). The labour force consisted of approximately 164,000 construction craftsmen who made up 65.6 percent of all gainfully occupied in the construction industry. Approximately 76,000 persons or 30.4 percent were labourers and other unskilled workers. The balance of 10,000 persons or 4 percent consisted of clerical staff and persons of other professional occupations.

Preliminary returns of the 1941 Census show employment in the construction industry as approximately 220,000. It is interesting to note that on the one hand gross value of construction in 1941 went up by approximately 250 million dollars as compared with 1931, while on the other hand there were approximately 30,000 men less employed in 1941 than in 1931. These figures support the claim that technological improvements contribute to an increase of the output per worker in a given period (1). In other words, a worker employed in the construction industry in 1941 produced more in terms of dollar values than he did in 1931. Even if the above dollar figures are adjusted in conformity with the changes in the nominal value of the dollar, the fact remains that output per man increased. It is important to consider this trend in calculations of the volume of construction which a given number of men will be able to produce in the post-war period.

##### Employers and Employees in the Construction Industry

According to estimates made by the Business Statistics Branch of the Dominion Bureau of Statistics for the period 1919-1938, 74 percent of all persons gainfully occupied in the construction industry were employees. The other 26 percent were working on their own account either as employers or working proprietors. These estimates are based on calculations relating only to construction work undertaken by private contractors who carry out the major part of construction work in this country. Figures given in Table XIV showing the proportion of employees and own account workers in construction industry for the period 1919-1942 can therefore be regarded only as a major sample.

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(1) See Preliminary Report II, Synopsis, 6 e and f, pp. 8 - 9.





According to this computation of the Dominion Bureau of Statistics there were 71,800 employees and 32,372 employers and working proprietors, a total of 104,172 in 1919. When the construction industry afforded employment to the greatest number of men in its history in 1929, it is estimated that there were 208,186 persons gainfully occupied consisting of 159,447 employees and 48,739 employers and working proprietors. The lowest level of employment in the construction industry was reached in 1934. The Dominion Bureau of Statistics estimated for this year only 46,479 men gainfully occupied, consisting of 36,533 employees and 9,946 employers and working proprietors. For 1942 there exists only a preliminary estimate. There were approximately 133,341 person employed on construction work undertaken by general contractors, trade and sub-contractors (private contractors) consisting of 111,109 employees and 22,232 persons working on their own account. These statistics show quite clearly to what considerable extent employment in the construction industry varies with the changing phases of the business cycle. Employment in 1929 in the construction industry was considerable. Both own account workers and employees flourished. The depression of 1934 affected the construction industry as a field of employment considerably. The up-swing phase of the business cycle from 1935 onwards shows an increase of employment in construction, although it has by no means come near the peak year of employment in 1929.

The estimate made by the Dominion Bureau of Statistics with regard to the proportion of wage earners amongst the gainfully occupied in the construction industry is somewhat above the figures available from preliminary returns of the 1941 Census. According to the Census there were approximately 220,000 gainfully occupied in the construction industry consisting of about 183,000 wage earners and 37,000 employers and working proprietors, representing a proportion of 83 to 17 <sup>(1)</sup>. To place the two different proportions, namely 74 to 26, and 83 to 17 in the proper perspective, the following points should be noted:

(1) The estimate of the Business Statistics Branch of the Dominion Bureau of Statistics relates only to a section of construction activity while the Census relates to the industry as a whole.

(2) As a result of our present economy the number of individual working proprietors decreases and the number of employees increases. Many tradesmen find it difficult to carry on an independent business and enter into employment as a more secure way of earning their livelihood.

These points may offer some explanation for the different sets of figures illustrating the relation of employers and employees in the construction industry in the course of the last two decades.

#### Age Composition of Persons in Construction Industry

The age distribution of construction craftsmen discussed in Section II cannot be expected to agree with the age distribution of persons employed in the construction industry as a whole. This is clearly shown in the Census 1931. A comparison of age group figures shows that the average person employed in the construction industry was younger than the average construction craftsman. This can be explained by the fact that the unskilled and semi-skilled labourer is usually considerably younger than the construction craftsman. Youths under 16 years formed 0.21 percent of the total number of persons employed in the construction industry as against 0.13 percent for persons in construction occupations (see Tables III and XV). For the age group 16-19 the proportion was 4.84 percent for the industry group and 3.28 percent for the occupational group. The age group of 20-24 was again marked by a greater number of persons in the construction industry (11.67 percent) than in construction occupations (9.95 percent). The age group of 25-34 is the last one in which

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(1) Dominion Bureau of Statistics: Ten percent sample from the 1941 Census; Bulletin No. 2 of "Occupations and Earnings", pp. 9 and 11.





persons employed in the construction industry are represented in greater proportion than in construction occupations, the percentages amounting to 24.07 percent as against 21.07 percent. From the age of 35 onwards the proportion of persons in construction occupations is greater than that of persons employed in the construction industry. Of the total number of construction craftsmen 60.06 percent were between the ages of 35 to 64 as against 54.3 percent of persons in the construction industry. For the age group 65 and over the percentages were: construction occupations, 5.51 percent, and construction industry, 4.88 percent. (1)

It is desirable to have some more recent information on the age groups of persons employed in the construction industry. Since information from the Census may not be forthcoming for some time, data available for persons registered as being employed in the construction industry under the Unemployment Insurance Act may suffice. An analysis of tabulations of all schedules under the Unemployment Insurance Act, received by the Dominion Bureau of Statistics between July 1, 1941 and March 31, 1942, provides a different picture from that shown in the Population Census 1931. It is important to bear in mind that under the Unemployment Insurance Act of 1940 only employees are subject to its regulations. A comparison of age groups of the insured population with age groups given in the Population Census of 1931 is only possible with due consideration that the former compilation provides no information on the age group of employers and working proprietors.

The proportion of young men in the construction industry as shown in the registration under the Unemployment Insurance Act is greater than that of the Population Census 1931, 50.38 percent of insured persons working in the construction industry being 34 years of age or younger (see Table XV). Only 40.79 percent of the total number of persons gainfully occupied in the construction industry in 1931 were of 34 years of age or younger. These data show in a rough way that the average person working in the construction industry was younger in 1942 than in 1931. A comparison of the age groups of construction craftsmen for the years 1931 and 1940 showed that the average construction craftsman was older in 1940 than in 1931 (see Section II). Since apparently the average person in construction industry was younger in 1942 than in 1931 it is possible to infer that there exists a reserve of semi-skilled and unskilled persons with some experience in the construction trades working in the construction industry. These men have not reached the stage of qualified construction craftsmen and might not even have decided yet to remain in this occupational field. These men form a source for new recruits to become construction craftsmen after the war. The need for plans for a shortened period of apprenticeship for young men with previous training in the construction industry and a system of upgrading for older men is indicated. In particular, there is a considerable reserve of persons with construction experience in the age group of 20-34; provisions for adult apprenticeship and upgrading will be essential in order to meet the special requirements of training persons in this age group.

A number of sources are doubtful about the success of upgrading schemes and fear that such schemes may be detrimental to plans advocating regular and unshortened apprenticeship for young men. A possible answer to this contention is that the system of upgrading is a scheme intended to cover only the requirements of a few years after this war in order to assist in the rehabilitation of soldiers and men released from war factories and to alleviate a temporary shortage of building mechanics. A number of men who underwent an upgrading training might desire to turn to other industries than construction. It can be expected that after a retooling period manufacturing industries will be able to offer employment to some of those men. Others will be absorbed in a large scale construction programme which can be expected for a number of years in the post-war period. It bears emphasis that a shortened apprenticeship system for adults represents a short term programme only and should not interfere with the long term programme of

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(1) In these statistics approximately 6,000 persons engaged on shipbuilding are included.





making provisions for youths to learn a trade in a way which will meet the requirements of the construction industry in the post-war period.

A comparison of Canadian conditions with those in England and Wales illustrates further the need for training new men in order to meet requirements of the construction industry in the future. The Census 1931 reports for the construction industry in England and Wales that there were 5.5 workers over 21 years of age for every worker under 21. An accurate figure for Canada is not available for construction workers of 21 years and younger because of a different age grouping in the Canadian Census. It is estimated that there were approximately 25,000 persons of 21 years or younger as against approximately 231,000 persons of 22 years and older. This means that there were 9.2 workers over 21 years of age for every worker of 21 and under. These statistics show that the average worker engaged in construction industry in England and Wales is considerably younger than the average worker in Canada and present additional evidence of the need for a remedy against the aging process which threatens to make the construction trade in this country a profession of old men.

#### Seasonal Unemployment

It has been repeatedly emphasized by representatives of the industry and labour organizations that a more even distribution of construction work during one year would be highly desirable. Some indication of seasonal unemployment may be obtained from a study of the employment index compiled by the Dominion Bureau of Statistics. This index is based on reports by employers having 15 or more employees. The base of the employment index is 1926. The employment index does not cover all of the construction industry as a field of employment but it covers the major part. There were 125,919 persons employed by large firms (15 employees or more) in 1938, 136,265 in 1939, 110,030 in 1940 and 158,281 in 1941. These statistics include the number of persons employed on railway construction. These totals cannot be used for comparison with the number of persons employed as reported in the Construction Census because the latter does not include construction work undertaken by the railway companies.

The index numbers of employment in the construction industry as reported by employers are shown in Table XVI and in Figure XI. When considering the picture presented in Figure XI it should be borne in mind that the employment index does not only show seasonal fluctuations but also cyclical fluctuations. In other words, persons are not only unemployed in certain periods because of the bad weather but also because there might be no work for them or because they moved from one region to another. The employment index reaches the lowest point during the four years considered in the months of February or March. The highest point of employment is usually reached in August or September. The only exception in the period 1938-1941 is October 1938. As a general rule, however, August and September can be taken as the months when employment in the construction industry is highest.

#### Unemployment in Construction Trade Unions

The fluctuation of the construction industry as a field of employment can be best visualized when studying the unemployment reports made by construction trade unions to the Department of Labour.

For a number of years trade unions representing organized construction craftsmen have made monthly reports on the number of their members who were without work. For the purpose of analysis three critical years of the construction cycle have been selected: the boom year 1929; the depression year 1933; and 1941, the peak year of construction up to the





FIGURE XI

# EMPLOYMENT IN CONSTRUCTION INDUSTRY REPORTED BY EMPLOYERS 1938 - 1941

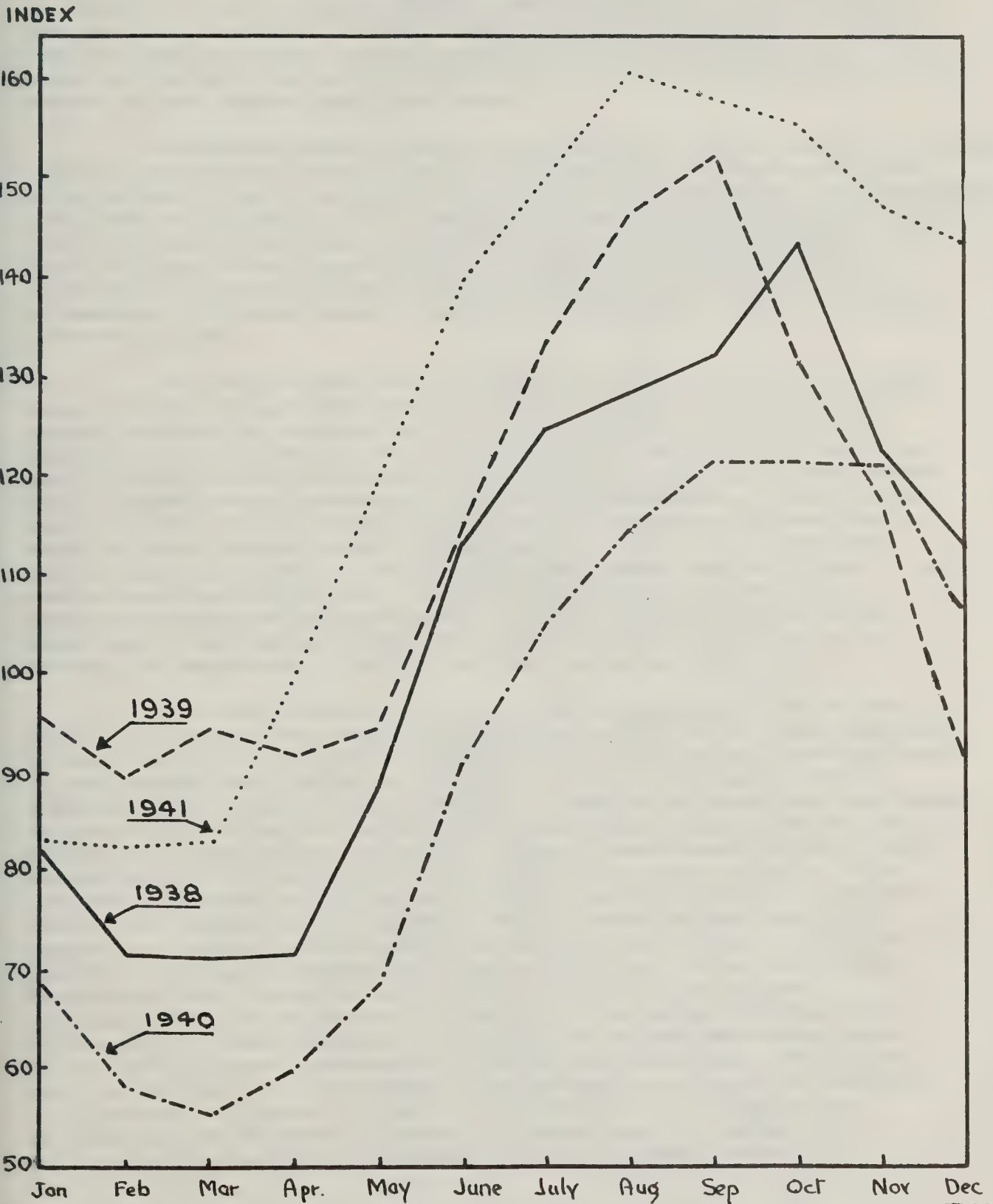


Chart showing employment in the construction industry as reported by firms with fifteen or more employees for the period 1938 to 1941. Base of index: 1926=100.

# EMPLOYMENT IN CONSTRUCTION INDUSTRY REPORTED BY EMPLOYERS 1938 - 1941

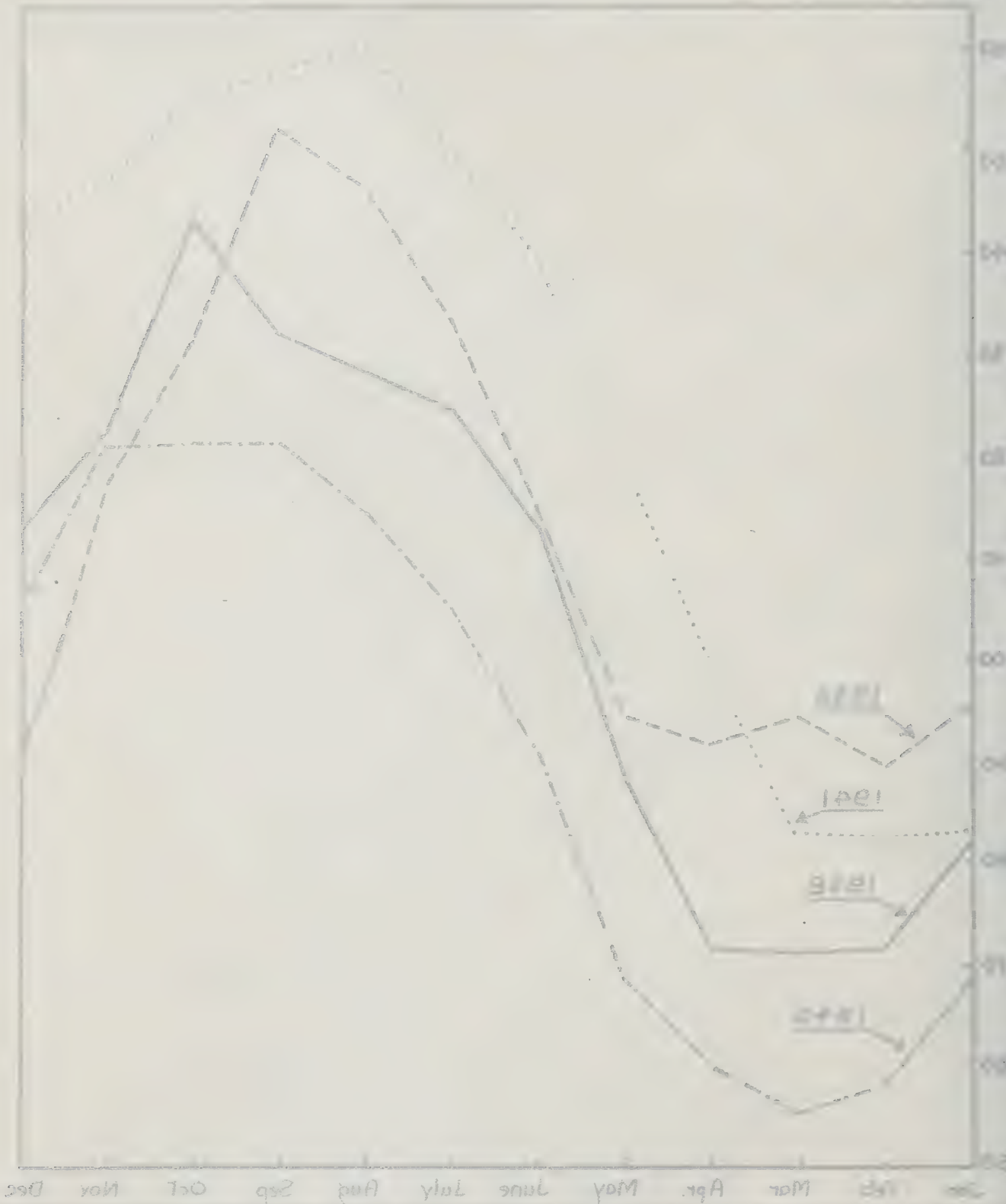


Chart showing employment in the construction industry as reported by firms with fifteen or more employees for the period 1938 to 1941. Base of index: 100.

present (1). Unemployment is expressed as a percentage of the total membership of these unions.

Construction trade unions reported 19 percent unemployed in January 1929 and only 7 percent in July, the lowest figure for the year. From August onwards unemployment rose, reaching its peak in December with 25.6 percent. The annual average for 1929 was 13.2 percent (see Table XVII and Figure XII).

An entirely different picture is presented in 1933. The highest proportion of unemployed was 71.7 percent in February. Unemployment decreased very slowly in this year reaching its lowest point in July with 61.9 percent; it then rose to 69.1 percent in December 1933. How bad the conditions must have been for construction craftsmen during 1933 can be realized from the fact that the annual average of persons unemployed amounted to 66.7 percent. This means that during the whole year two-thirds of the total strength of construction workers in trade unions were without work.

A different picture again is presented by the figures available for 1941, when this country experienced a construction boom which, as far as unadjusted dollar values indicate, was greater than that of 1929. Percentages for unemployment were lower in 1941 than in 1929. Unemployment was highest in March 1941 amounting to 19.9 percent of the total construction labour force in trade unions. From April 1941 onwards unemployment dropped continuously, reaching its low in August with 6.9 percent; it rose from September onwards reaching 10.6 percent in December. The annual average amounted to 11.5 percent, which is below the percentage of 1929.

The curves representing unemployment during the years 1929 and 1941 shown in Figure XII indicate quite clearly that seasonal unemployment can be reduced considerably, provided there is enough work for all those who are willing and have the skill to do it. That is not to say that there exists no need to reduce seasonal unemployment by appropriate technological improvements. On the contrary, such improvements would be highly desirable. A contribution towards a reduction of seasonal fluctuations in construction industry can be noted in recent building activity undertaken on a large scale in the United States. Parts of houses for some building developments were built under a roof erected near the building site. Such improvements have been found only practical for large building projects. Canadian contractors might usefully study these latest devices being used in the United States for the purpose of reducing the dependence of building and construction on good weather.

The above statistics show that cyclical unemployment causes much greater disturbances than seasonal unemployment could ever do. This conclusion is also supported by statistics contained in Table XVIII which show unemployment in construction trade unions for February and August 1929-1942. These two months have been selected because February is usually the month when unemployment in construction is largest due to weather conditions. Construction work is usually at its peak during the month of August. Unemployment in trade unions during February 1929 amounted to 19.8 percent of the total strength. This proportion increased to 71.7 percent in 1933, (see Figure XIII), it declined then to 42.5 percent in 1938, showed a small increase in 1939, namely 44.6 percent, and then decreased rapidly, reaching its lowest point in 1942 with 15.5 percent. Unemployment in February 1942 was below the level of unemployment in February 1929. A similar picture is presented by an analysis of unemployment figures in the month of August for the period 1929-1942. Some difference to be noted consists in the fact that in good years unemployment in the month of August decreases at a greater pace than unemployment in the month of February. So, for example, unemployment during August 1929 amounted to 7.2 percent as against 3.3 percent in August 1942. The figures for February 1929 and February 1942 were 19.8 percent and 15.5 percent. It follows that fluctuations in employment during the summer months will be

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(1) A discussion of the coverage of trade unions for the total construction labour force will be found in Preliminary Report III.





FIGURE XII

# SEASONAL UNEMPLOYMENT IN CONSTRUCTION TRADE UNIONS 1929, 1933 and 1941

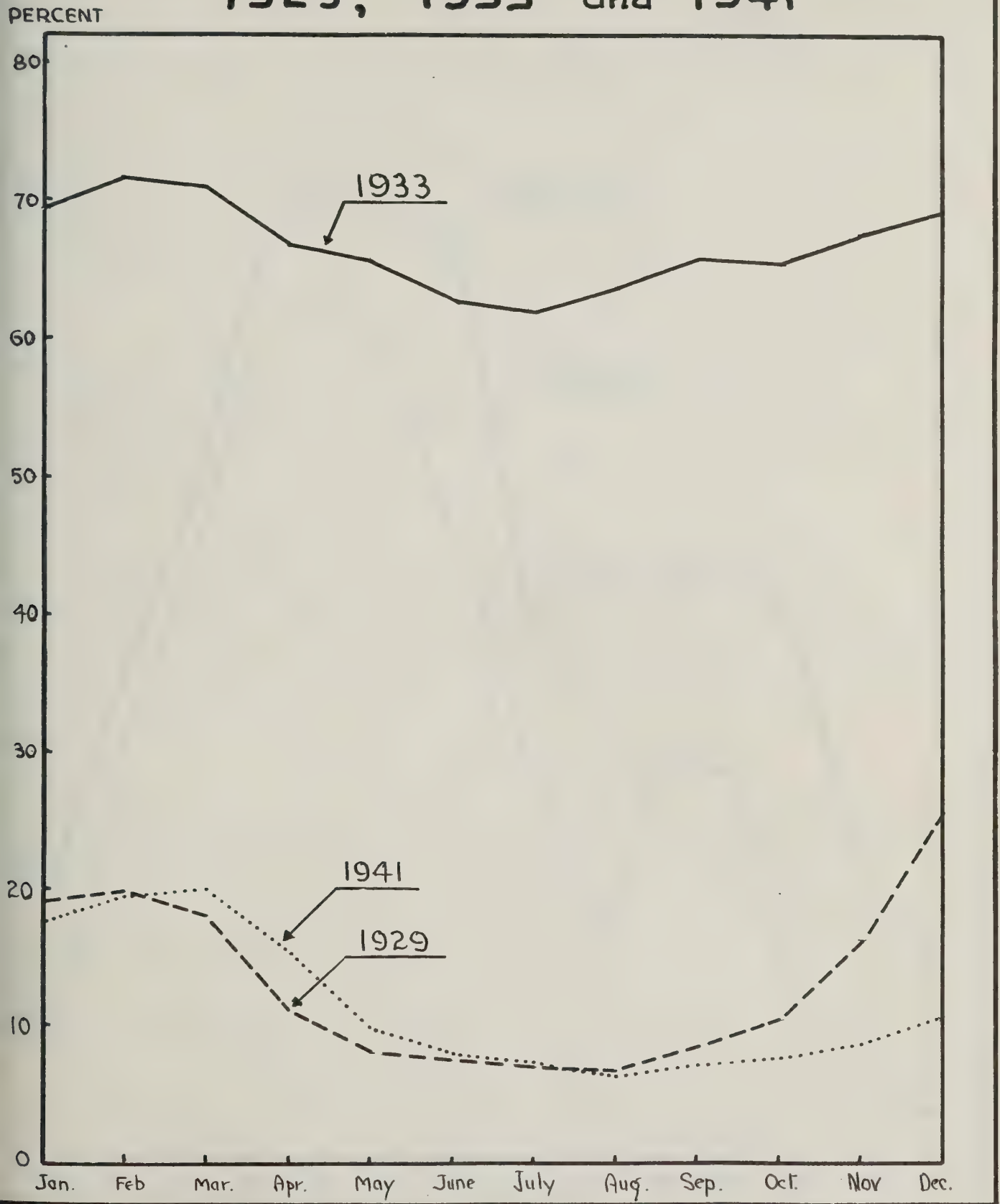


Chart showing seasonal unemployment in construction industry based on returns from construction trade unions for three selected years 1929, 1933 and 1941. Unemployment is expressed in percent of the total membership of construction trade unions.





FIGURE XIII

# CYCLICAL UNEMPLOYMENT IN CONSTRUCTION, February & August, 1929-1942.

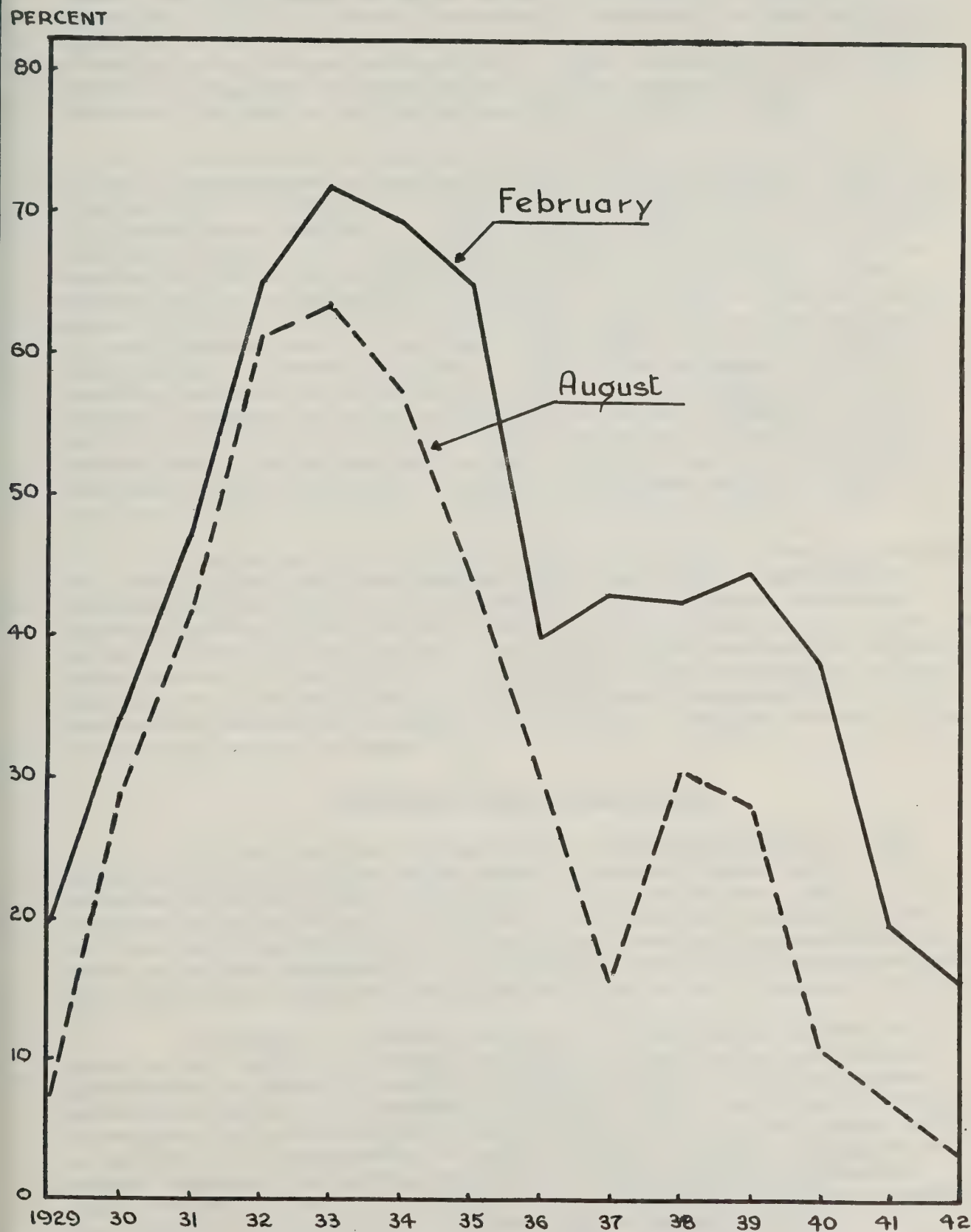


Chart showing for the period 1929 to 1942 cyclical unemployment in construction industry based on returns from trade unions. Unemployment is expressed in percent of the total membership of construction trade unions. Unemployment is highest in February and lowest in August.



greater than during the winter months. This is supported by the curves shown in Figure XIII. The broken line representing unemployment during the month of August for the period 1929-1942 shows greater fluctuations than the curve shown as a full line representing unemployment during the month of February.

#### War Construction vs. Civilian Construction

The Department of Munitions and Supply, Economics and Statistics Branch, has kindly given the writer access to a survey of employment on construction which was recently completed. Firms with 15 or more employees engaged on construction work were subjected to this survey. The employment situation during the week ending August 1, 1942, was surveyed. The report covered all employees including office staff and inspection staff of the reporting firm, but did not include employment of sub-contractors.

This survey included building construction, road construction, railway construction and other construction. The firms surveyed reported a total of 166,515 employees. Of this construction labour force, 102,049 or 61.3 percent were reported to be employed on war construction. The balance of 64,466 persons or 38.7 percent were reported to be employed on civilian construction, including roads (see Figure IX). Only roads built at the specific request of the military authorities, for example a road leading to an air field, were included under war construction. The main proportion of roads, however, were included under construction for civilian purposes. Table XIX shows a further breakdown of construction employment for war purposes according to the following types: On contracts from departments of the Dominion Government, or on sub-contracts for a Dominion Government contract 42,605; on contracts from Wartime Housing Limited or on sub-contracts of a Wartime Housing Limited contract 6,429; on all other war construction including construction for war purposes on contract with private companies or with government owned companies other than Wartime Housing Limited 53,017.

The percentages established above can be used to show in a rough way what proportion of total construction carried out in this country since September 1939 was done for war purposes and what proportion represented construction for civilian purposes. Using the above ratios it is possible also to make estimates of the backlog of construction which has come into existence during the war. It is obvious that military needs and construction for war purposes are of primary importance during the present emergency and civilian construction has had to be reduced. The backlog of civilian construction thus accruing is discussed in Report VI.

#### Earnings of Construction Workers

It has often been claimed that the construction worker is much better off than the average person gainfully occupied because he is paid a higher wage rate than the average person. This is a fallacy. The construction worker is laid off more often and loses more working time than any other person gaining his livelihood in this country. The construction worker is not only dependent on the weather but also on the construction cycle, which fluctuates considerably more than any other cycle of economic activity.

According to estimates made by the Dominion Bureau of Statistics annual average earnings of persons gainfully occupied in the construction industry during 1919-1938 amounted to \$1,003 as against \$1,090 of persons gainfully occupied in all industries (see Table XX). Annual average earnings of employees in the construction industry amounted for the same period to \$929 as against \$1,204 representing the annual earnings of persons working on own account (employers and working proprietors) in the construction industry. Annual earnings of gainfully occupied in the construction industry is computed from statistics for earnings of employees and own account workers.





A study of the annual earning figures for persons in the construction industry and persons in all industries bring out the considerable fluctuations which remunerations for construction workers underwent during the period 1919 to 1942 (see Table XX and Figure XIV). In 1919 a person gainfully occupied in the construction industry earned \$1,164 as against \$1,068 for the average working man. For five years following the last war earnings of the construction worker were above those of the average worker. In 1925, however, they fell below the latter and remained so until 1938. In this year a construction worker earned \$1,113 as against \$1,100 for the average working person. The war has brought a change in favour of the construction worker. Preliminary estimates for 1942 indicate that the annual earnings of the construction worker have risen to \$1,486 as against \$1,361 for the average gainfully occupied person.

Some representatives of the construction industry claim that the hourly wage rate of the construction worker is too high when compared with wage rates paid to other occupations. One would expect that the annual earnings of a construction worker would be on the whole higher than that of the average working person because of the "high" hourly wage rate. The above statistics, however, show that this was not the case in the pre-war period. It follows that the claim of the construction worker for an hourly wage rate above the rate paid to an average worker is justified by the fact that he loses a great number of working days during the year. Unless it were, his income would be far below that of the average working person. Such a condition is not desirable especially as it takes time for a person to qualify as a skilled craftsman. The construction worker is probably more interested in maintaining his annual earnings near the level of the income of the average working person than in maintaining a high hourly wage rate. If the construction worker could be assured of continuous employment and a steady income, he might be willing to accept a lower hourly wage rate which still would assure an annual income above the pre-war level. It is a matter of sound economy to maintain employment throughout the year. If this could be achieved for the construction industry, it would satisfy both the entrepreneur and the worker. The latter could be assured of an income higher than that of pre-war days, while the former would not have to pay as high an hourly wage rate as he is doing at present. If this could be attained, it would be an important contribution to the success of a large-scale construction programme after the war.





FIGURE XIV

# ANNUAL EARNINGS IN CONSTRUCTION INDUSTRY AND ALL INDUSTRIES, 1919-1942.

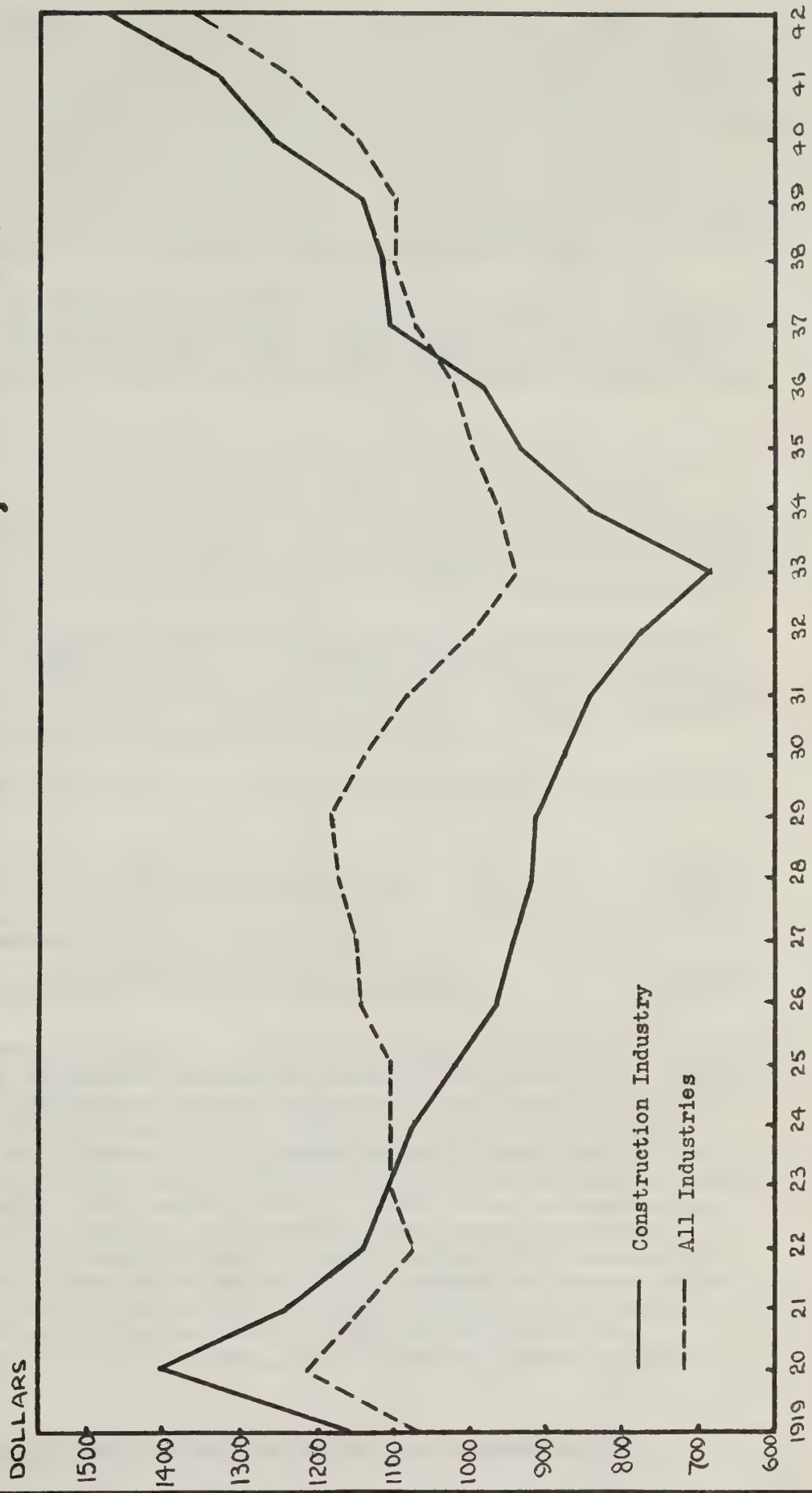


Chart showing for the period 1919-1942 a comparison of the annual earnings of persons gainfully occupied in the construction industry with those in all industries. (Dominion Bureau of Statistics' estimates).



## V. THE CONSTRUCTION WORKER IN THE ARMED FORCES

The Committee on Demobilization and Rehabilitation prepared an occupational history form which has to be filled out by anybody entering the armed forces. This includes men volunteering for active service and recruits under the National Resources Mobilization Act. The survey discussed in this section deals with males only. The distribution of forms to recruiting centres was commenced in January 1941. Some outlying districts did not receive occupational history forms before May 1941. All soldiers stationed in Canada were requested to fill out these forms, which were then to be forwarded to the Manpower Records of the Department of Labour. This Department was entrusted with the compilation of the data from occupational history forms.

The Manpower Records Department estimates that 50,000 men in the Army, 30,000 men in the Royal Canadian Air Force and 3,000 men in the Navy, a total of 83,000 men, went overseas without completing occupational history forms. Arrangements to include this group in the occupational history survey are being made.

There is a considerable routine connected with filling out these forms and it takes time for these forms to reach the Manpower Records Department. This Department estimates that as far as total enlistment is concerned their coverage is as follows: Army - 60 percent, Royal Canadian Air Force - 60 percent, Navy - 80 percent. It is of importance to bear in mind that total enlistments include men on active service, discharges and casualties.

For the purpose of determining the number of men in construction occupations in the armed forces it is important to know the coverage of the survey discussed in the following. It is based on all forms of men on active service as of August 31, 1942. The survey covers 320,157 forms, including draftees under the National Resources Mobilization Act.

On August 31, 1942, the total strength of the armed forces was as follows:

Men in the Army . . . . .	330,562
Men in the Royal Canadian Air Force . . . . .	133,247
Men in the Navy . . . . .	43,150
Draftees under the National Resources Mobilization Act . . . . .	41,018
Total Number of Men in the Armed Forces . . . . .	547,977

Comparing the number of occupational history forms of men on active service (excluding discharges, casualties, duplications, incomplete forms and forms received by the Manpower Records Department but not available for the survey on August 31, 1942) amounting to 320,157 with the total strength of the armed forces as of August 31, 1942 numbering 547,977 we find that the coverage of the survey based on occupational history forms covers 58.4 percent of the total strength. The present survey is therefore to be regarded as a major sample of the occupational qualifications and other information available on men in the armed forces. It can be assumed with reasonable safety that the qualifications of the other 41.6 percent not covered by the present survey will be similar to those presently analyzed. The Manpower Records Department has kindly put at the disposal of the writer the information available in their records. The following analysis is based on these statistics.

### Persons in Construction Occupations in the Armed Forces

There was a total of 19,457 persons reported to be in construction occupations in the armed forces as of August 31, 1942. Since this figure relates only to a 58.4 percent sample the total number of persons in construction occupations in the armed forces as of August 31, 1942 will be between 30,000 to 35,000 persons.





The Manpower Records Department reports that 17,521 persons in construction occupations were reported to be employed at the time of enlistment. The term "employment" refers to wage earners, working proprietors, and employers. In other words, this is the total number of men in construction occupations who were working either as wage earners or on own account. This is about 90 percent of the total number of construction craftsmen. The remainder of 1,936 persons or about 10 percent of the total number of construction craftsmen were reported as not employed at the time of enlistment (see Table XXI and Figure XV).

Persons in construction occupations in the armed forces included 2,293 owners, managers, builders and contractors, 3,768 carpenters, 2,129 electricians and wiremen, 2,882 painters, decorators and glaziers and 1,761 plumbers, steamfitters and gas fitters. The balance was made up by a number of other trades enumerated in Table XXI.

The total construction labour force was divided among the armed forces as follows:

Army . . . . .	13,324
Royal Canadian Air Force . . . . .	3,474
Navy . . . . .	<u>2,659</u>
Total in the Armed Forces . . . . .	19,457

#### Construction Craftsmen Classified by Province of Enlistment

The question may arise as to where construction craftsmen will want to return after the conclusion of the war. Some answer to this problem may be obtained from a classification according to province of enlistment. It was found that in most cases men enlisted in the province either where they had been living with their families or in case of single men where they had been working. The Province of Ontario provided the biggest proportion of construction craftsmen who joined the armed forces. Its share, namely 37.88 percent, is above its proportion of construction craftsmen as indicated by the National Registration, which shows 36.96 percent of the total skilled construction labour force residing in the Province of Ontario. Ontario is followed by Quebec with 15 percent, which is considerably below the percentage of 31.66 shown in the National Registration. British Columbia is the next province where 11.13 percent persons in construction occupations enlisted. This is considerably above its proportion of 8.77 percent shown in the National Registration. Nova Scotia follows next with 8.33 percent of persons in construction occupations enlisted. The percentages of enlisted construction craftsmen for the other provinces are as follows: Manitoba, 7.28 percent, Alberta, 6.66 percent, Saskatchewan, 6.42 percent, New Brunswick, 4.68 percent, Prince Edward Island, 1.06 percent (see Table XXII).

#### Enlisted Construction Craftsmen in the Light of the National Registration, 1940

It has been estimated that there were about 200,000 persons in construction occupations in August 1940 when the National Registration was taken (see Section II). The Manpower Records Department reports that according to occupational history forms received for men enlisted before August 1942 there were 5,624 persons in construction occupations in the armed forces at that date. This figure relates to a major sample only. The total number of construction craftsmen in the armed forces as at August 1940 was probably around 10,000 to 12,000. This would indicate that between 5 percent and 6 percent of the total number of persons in construction occupations were in the armed forces at that date. This percentage has risen since August 1940. More recent information on that question will be available when the Census returns of men in the armed forces as of June 1941 are completed. It is estimated that about 15 percent of the total number of persons in construction occupations of all age groups were in the armed forces as of August 31, 1942. If it is





FIGURE XV

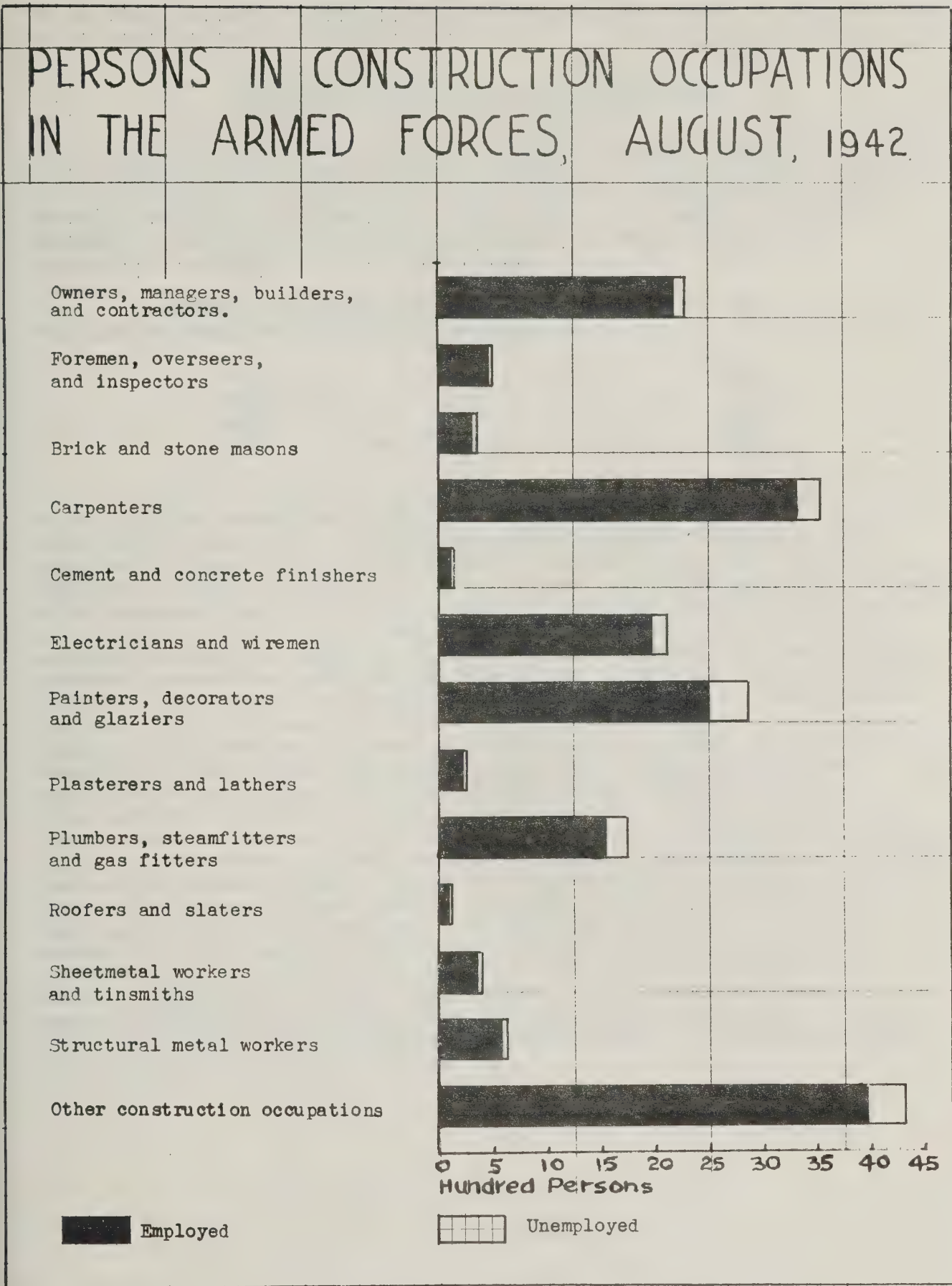


Chart showing the composition of the skilled construction labour force in the armed forces on August 31, 1942. Data based on a survey of reports received by Manpower Records, Department of Labour.



assumed that approximately 50 percent of persons in construction occupations were of military age, then it appears that approximately 30 percent of this group was in the armed forces as at that date.

Construction Apprentices in the Armed Forces

According to the survey of the Manpower Records Department there were 2,121 young men in the armed forces as at August 31, 1942 who claimed that they had been construction apprentices before enlistment. This includes seven construction trades as enumerated in Table XXIII. This number of apprentices represents about 11 percent of the total number of persons reported in construction occupations in the armed forces.

Construction apprentices reported by the Manpower Records Department were divided among the armed forces as follows:

Army . . . . .	1,205
Royal Canadian Air Force . . . . .	483
Navy . . . . .	<u>433</u>
Total in the Armed Forces. . . . .	2,121

Of this total 1,870 men or 89 percent reported that they were employed as construction apprentices at the time of enlistment; 251 men or 11 percent reported that they had been without employment before they enlisted. The criticism of these figures that a number of young men are wrongly claiming to have been construction apprentices does not seem to be fully justified. It needs to be emphasized that there is, in Canada, no generally accepted definition of the construction apprentice. Young men in the armed forces calling themselves apprentices cannot be blamed for doing so when the apprenticeship system in all provinces except Ontario and British Columbia is so informal. There is little incentive for young men to describe themselves as apprentices if they have not done some work in a construction trade and intend to continue in that trade. Construction apprentices are lower paid than helpers and when young men declare themselves as construction apprentices, they indicate that they have not completed their training. Therefore, provisions for further training will have to be made for most of these 2,121 men when they are released from the armed forces. Some of these men might return to their former employers who have given them a definite promise of employment after the war. The proportion of those will, however, be presumably small. Proper training arrangements for construction apprentices without definite promise of employment are clearly indicated. Since the figure of 2,121 represents only a major sample of persons in the armed forces, the total number of persons claiming to be construction apprentices might have been approximately 4,000 on August 31, 1942. This number will rise as the war continues and the armed forces expand. This continuing increase of the number of construction apprentices in the armed forces represents a particular problem which deserves careful consideration by those charged with rehabilitation of these men after the war.





## VI. THE CONSTRUCTION WORKER DISCHARGED FROM THE ARMED FORCES AND THE TASK OF REHABILITATION

The following survey of persons in construction occupations discharged from the armed forces as at June 30, 1942 is based on data from 27,743 occupational history forms. This survey should only be regarded as a sample since it does not cover the total number of persons discharged as at that date. The total number of discharges as at December 31, 1942 was estimated to be between 70,000 and 75,000.

### Discharged Construction Craftsmen by Trades

Of the total number of persons in construction occupations discharged from the armed forces as at June 30, 1942, 1761 or 80 percent had been employed before they enlisted, and 436 men or 20 percent had been without work when they joined the armed forces (see Table XXIV).

The biggest groups were: Contractors, 380; painters, decorators and glaziers, 371; carpenters, 365; next in order were two groups, plumbers, steamfitters and gas fitters, and electricians and wiremen, 185 each. The remainder was made up by construction foremen, 59; brick and stone masons, 54; cement and concrete finishers, 30; plasterers and lathers, 44; roofers, slaters, 6; sheet metal workers and tinsmiths, 38; structural metal workers, 76; and other construction occupations, 429. Because of the great wartime shortage of skilled construction craftsmen, these men had no difficulty in obtaining employment. Obviously it would be entirely different if these discharges were to take place after the conclusion of the war. Unless there is more assurance that a certain minimum of construction activity will be maintained construction workers released from the armed forces will not be able to find work. This is one of the reasons why public authorities have to be concerned with measures which in the early post-war period will contribute to maintaining at least the level of employment in the construction industry during wartime. In other words, the government cannot allow construction to return to the pre-war level if considerable unemployment in this industry is to be avoided. An analysis of the volume of a construction programme after the war is given in the final Report (VI).

### Discharged Construction Craftsmen by Province of Enlistment

The biggest proportion of construction craftsmen discharged from the armed forces enlisted in the Province of Ontario. They numbered 805 men equal to 36.66 percent (see Table XXIV); 415 discharged men enlisted in Quebec (18.89 percent); 250 men came from the Province of British Columbia (11.38 percent); 145 men (6.59 percent) from Alberta; 143 men (6.51 percent) from Manitoba; 137 men (6.24 percent) from Nova Scotia; 108 men (4.91 percent) from Saskatchewan; 102 men (4.64 percent) from New Brunswick; 28 men (1.27 percent) from Prince Edward Island; finally 64 men (2.91 percent) had either enlisted overseas or there was no information available as to the place of their enlistment.

### Quantitative Analysis of the Task of Rehabilitation

An answer is attempted to the following questions:

(1) What would have been the task of rehabilitation with regard to providing employment for persons in construction occupations in the armed forces based on the assumption that the war had ended on August 31, 1942?

(2) What will be the task of rehabilitation with regard to





providing employment for persons in construction occupations in the armed forces based on the assumption that the war will end in 1945?

For the purpose of a quantitative analysis of the task of rehabilitation a second run of the cards taken from occupational history forms in the Manpower Records Department was made. It was found that there was a divergence between the first run on which Tables XXI to XXV are based and the second run on which figures given below are based. This divergence is due to the oversight of a few cards in the first run. Since, however, the margin of error was less than one percent of the total number of persons in construction occupations reported to be in the armed forces, it has no bearing of importance on the present analysis.

The answer to the first question is:

A number of persons previously employed in construction occupations have received a definite promise from their former employers that they will be taken back into employment as soon as the war ends and they are released from the armed forces. In addition to that a number of contractors and independent working proprietors have made definite arrangements which will enable them to return to their former occupations. It appears, however, that the majority of persons in construction occupations have neither received a definite promise of employment nor have made any arrangements to return to their civilian vocations.

If the war would have ended on August 31, 1942 the following task of rehabilitation would have had to be faced. There were . . . . . 1,204 contractors in the armed forces who had made definite arrangements to return to their former business. There were, furthermore . . . . . 5,963 construction craftsmen who had received a definite promise from their former employers for employment or, in case of individual working proprietors, have made arrangements to return to their civilian vocation. It appears, therefore, that there were 7,167 persons in construction occupations whose future in civilian life was assured, at least to some extent. Since the total strength of the skilled construction labour force was reported as . . . . . 19,457 it follows that there were . . . . . 12,290 persons in construction occupations for whom employment would have to be provided.

Thus it appears that about 37 percent of the total skilled construction labour force in the armed forces would be able to look after themselves while the remainder of 63 percent would have to be looked after. Since it was estimated that the total number of persons in construction occupations was between 30,000 and 35,000 on August 31, 1942 it follows that provisions for the rehabilitation would include between 19,000 and 22,000 construction craftsmen. This is quite a formidable task especially if it is considered that construction craftsmen are not employed by themselves but that employment has also to be provided for semi-skilled and unskilled men who have to be employed when a construction craftsman is put to work. Using the ratio of skilled workers to semi-skilled and unskilled workers established for August 1942, namely 60 to 40, it means that employment will have to be provided for about 35,000 to 40,000 persons in order to provide work for the 19,000 to 22,000 construction craftsmen discharged from the armed forces.

A classification of persons in construction occupations in the armed forces who were employed previous to enlistment according to promise of employment and by provinces is to be found in Table XXVI. Contractors and persons who were not employed before enlistment are not included.

The answer to the second question is:

It is assumed that there will be 800,000 men on active service in 1945 (discharges and fatal casualties excluded but including



prisoners of war whose rehabilitation has to be considered) and that the war ends this year.

On August 31, 1942, it was found that there were 19,457 persons in construction occupations among 320,157 men in the armed forces whose occupational history forms were analyzed. This means that about 6.1 percent of the total strength were construction craftsmen. Applying this ratio to the assumed strength of the armed forces in 1945 we find that about 48,800 men will be in the army whose previous occupations were construction.

Using the same ratio for those with employment or other arrangements for returning to their civilian occupations and those without definite promise of employment we find that there will be approximately 30,700 persons in construction occupations for whom the government will have to find an opportunity of employment.

This figure should not be taken literally because we do not know at the moment when the war is going to end nor do we know the exact number of persons in construction occupations in the armed forces after the conclusion of the war. However, the above estimates indicate the size of the problem of employment which those responsible for rehabilitation of men in the armed forces will have to face. The above estimates are rather on the conservative side. It may well be that some of those who have a definite promise of employment might find that their previous employers have gone out of business and are thus not able to carry out the promise they have given. Other employers might not be in the financial position to carry out the promises they have given.

The rehabilitation of soldiers represents only one section of the post-war rehabilitation programme. Provisions will also be necessary to provide employment for those civilian construction workers previously employed in war factories and those working in the construction industry on projects connected with the war effort (see section VII).

The above mentioned facts have to be taken into consideration when the rehabilitation of persons in construction occupations at present in the armed forces is considered. The answer to the problem of rehabilitation is primarily one of employment for qualified men and training for those who desire to obtain skill qualifications which will assure them a possibility of earning their livelihood. Employment for construction craftsmen, however, will only be found if a construction programme is contemplated of a size which will allow the absorption of all those willing and able to work in the construction field.





## VII. THE POST-WAR OUTLOOK

The post-war outlook of the skilled construction labour force has to be seen in the light of two important aspects: the supply and the demand for building labour.

### Post-War Supply of Building Labour

It has been estimated that the following groups of persons in construction occupations would have been looking for work in the construction field, had the war ended on August 31, 1942:

(a) Between 19,000 to 22,000 men in the armed forces were in construction occupations who had neither a definite promise of employment nor had made any other arrangements to return to their former civilian vocations.

(b) The number of construction craftsmen employed in Canadian war industries is not known. It is assumed that about 25,000 persons in construction occupations would be without work if the majority of war industries would have closed down in 1942.

(c) It is estimated that about 60,000 persons in construction occupations were engaged in the construction industry on projects either directly or indirectly connected with the war effort (see synopsis, 26c).

Thus it appears that there would have been over 100,000 persons in construction occupations looking for work in the construction field, had the war ended in 1942. The employment of these men also entails use of an additional number of semi-skilled and unskilled men. Using the ratio of skilled to unskilled workers of 60 to 40, it follows that unemployment for about 170,000 persons (skilled, semi-skilled and unskilled) would have been needed in order to meet the situation. It is estimated that, should the war end in 1945, employment for about 200,000 men would be needed in the construction field. This is quite a formidable task requiring considerable forethought.

### Post-War Requirements for Skilled Construction Workers

Some might say why bother about training new construction craftsmen in the post-war period since there will be a great number of persons in construction occupations looking for work. On the surface, this contention is very tempting. The slogan to find work for men first before training new men will certainly be popular with those persons in construction occupations who will be looking for work after the war. It is, however, the duty of a government to look beyond the immediate requirements of the first post-war years. The following points are of importance:

(a) Not all those persons in construction occupations are considered by the industry and trade unions up to standard. A number of them may require further upgrading.

(b) It has been emphasized that for the last twenty years the average construction craftsman has grown considerably older. If construction trades are not to become the profession of the old, provisions for new men entering the skilled construction field have to be made.

(c) The question arises whether it is desirable to maintain the present numerical level of the skilled construction labour force or whether to make up for the deficiency in increase during the last decade. For fifty years, construction craftsmen have made up between five and six percent of the working population. It would correspond with the natural growth of the





occupational grouping of this country if this proportion of construction craftsmen could be maintained.

These facts point to the need for measures which will assist in replenishing the dwindling supply of skilled construction craftsmen in this country and in keeping it at its proper level in relation to the total working population. In order to accomplish this, a short-term and a long-term post-war training programme will be required. The former is designed to provide for the needs of the first two to three post-war years, while the latter is intended to make provisions for at least a ten-year period following the conclusion of the war.

#### Requirements of a Short-Term Programme

The need for construction craftsmen after the war will depend on the volume of construction carried out at that time. There are already indications that a construction programme may be necessary of a size which Canada has never before experienced. (1) If this is so, the construction labour force available will not suffice to cover the demand for skilled men.

In any estimate of the requirements for skilled construction craftsmen in the post-war period, it is necessary to distinguish between (1) minimum requirements in order to maintain the construction labour force at its present level, and (2) potential requirements in order to provide an additional number of skilled workers for the purpose of carrying out a big construction programme after the war.

(1) It is estimated that there will be 15,000 craftsmen less if the war ends in 1945. Some of those men will die, others will retire. It bears emphasis that a number of retired construction craftsmen have been brought back into the field of employment because of the urgent demands of the war. These men will again withdraw as soon as the war ends. They will be joined by others who have reached, in the meantime, the age of 70 years or more. Furthermore, perhaps 5,000 persons in construction occupations in the armed forces will be casualties. Thus, it will be necessary to obtain an additional number of 20,000 construction craftsmen shortly after the war if the skilled construction labour force is to be maintained at the level of 1941.

(2) It may become necessary to make up for the deficiency in the natural growth in the number of construction craftsmen, experienced during the decade 1931 to 1941. To meet this, it will be necessary to train an additional number of 20,000 construction craftsmen.

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(1) Mr. L.H.D. Sutherland, the President of the Montreal Builders' Exchange said at the annual meeting (March 9, 1943): "Another and equally important reason is the part that our industry will play in post-war reconstruction. All plans for employment after the war contemplate construction on a scale hitherto unheard of." Mr. Sutherland noted among other projects, housing on a most extensive scale; further hydro developments; reforestation on a comprehensive scale, involving the construction of camps, etc.; prairie irrigation schemes involving the diversion of the Saskatchewan River; and harbour facilities on both coasts and in the largest rivers to maintain ship-building efforts. "In all these enterprises and in many others not mentioned, our industry will perform a notable part. No other industry with the possible exception of farming can absorb so many of our population released from war activities." (Montreal Gazette, March 10, 1943).





The immediate post-war requirements for construction craftsmen number 40,000 if minimum and potential requirements are taken together. A Canadian training programme of 40,000 building mechanics for the immediate post-war period is small as compared with what other countries are planning to do. Last month, the British Government's plans covering a huge post-war building and town planning programme with employment for 1,250,000 men were outlined. The spokesman for the British Government declared that the Government is aware of a possible shortage of skilled labour which must be met by the special training of adults on a large scale. An intensive course of instruction will be given to selected men and it is hoped that 200,000 persons will be trained during the first three to four post-war years. Some sources might say that conditions in Canada cannot be compared with Great Britain because she has devastated cities to rebuild while this is not the case in Canada. This is true but there are a number of other reasons why Canada requires a great number of new construction craftsmen after the war. It has been shown that the average construction worker in Canada is much older than his colleague in Great Britain. Furthermore, the backlog of construction which has come into existence in the last decade in Canada is in proportion much greater than that of Great Britain. In conclusion, a short-term post-war programme of training 40,000 construction craftsmen in Canada should be within our reach and should meet with the demands for replenishing our aging skilled construction labour force.

#### Recruitment of Building Labour

In order to provide 40,000 building mechanics for the immediate post-war period, it will be necessary to turn to the following sources of labour supply.

- (1) There will be a small number of young men below the military age who will be working as construction apprentices.
- (2) There will be a number of young men in the armed forces who have been construction apprentices before they joined up. Statistics provided by the Manpower Records Department show that there were 2,121 construction apprentices in the armed forces as at the 31st of August, 1942. Since the report by the Manpower Records Department is based on occupational history forms received, and therefore does not cover the total strength of the army, it is estimated that there were approximately 4,000 young men, all told, who were construction apprentices before they joined up. This number will increase slightly as the war goes on.
- (3) A number of men are obtaining skill while serving with the armed forces. For example, there will probably be a sufficient number of electricians, since a considerable number of men are trained in this capacity in the armed forces. These men might, after passing an examination or attending a short course of instruction, receive the qualifications of skilled craftsmen.
- (4) The same principle applies to a number of men who have been working in war industries and have acquired skill useful to the construction industry. In this category would be included, for example, sheetmetal workers and welders.
- (5) There are a number of semi-skilled men employed in the construction industry. These men have been called upon to do a craftsman's job during war-time simply because there were not enough craftsmen available. A number of contractors have emphasized the dilution of the skilled construction labour force. They claim, however, that some of these semi-skilled men have proved very handy. They would be fitted to become craftsmen provided proper training arrangements could be made for their upgrading. Some of these semi-skilled men might provide a valuable source of recruits to be trained as construction craftsmen.
- (6) It is to be hoped that at least 30,000 skilled construction craftsmen might be obtained from the sources described in 1 to 5. The balance of 10,000 men could be made up by arranging for the immigration of skilled construction craftsmen from Europe. Since the British authorities have made clear that they are in urgent need of their own construction craftsmen,





immigrants from other countries than Great Britain will have to be secured. A programme of securing 10,000 construction craftsmen from Europe will require a quota of 2,000 men annually for five years after the conclusion of the war. There is no doubt that, if the need for skilled construction craftsmen in Canada were made known in Europe, the applications for immigration would exceed the demand of this country. Thus a policy of selection would be possible. Special attention should be given to the lack of highly skilled fine carpenters. The carpentry trade is the most important construction trade in this country. There is a great number of rough carpenters but there is a dire shortage of fine carpenters. Contractors complain that this lack of fine carpenters has been especially felt during war-time. This problem is likely to be one of foremost importance in the post-war period, especially when residential construction will be stepped up considerably..

Distinct from the short-term programme for the purpose of alleviating the shortage of building mechanics immediately after the war, are provisions intended to assure in the long run a sufficient number of young men properly trained in building trades in this country.

#### Requirements for a Long-Term Programme

Mr. J.M. Pigott, who has taken an active interest in apprenticeship matters in the past, declared at a meeting of the Vocational Training Advisory Council in Ottawa (February 22-24, 1943) that in his opinion "Canada is facing a period of fifteen or twenty years at least of extraordinary expansion". It is imperative to plan now for the requirements of construction labour during this period in order to "provide for this country the development that is doubtless awaiting it" (see Appendix III).

The need of looking ahead for a longer period than the immediate two or three post-war years is clearly indicated. A ten-year period would be the minimum for which plans in advance would have to be prepared. It is on this basis that a long-term programme is outlined below.

A long-term programme should be based on a more social outlook than indicated by conditions of the pre-war period. Considerable discussion on social security measures in Great Britain, the United States and other parts of the British Empire have indicated that these countries have become very conscious of the need to take care of their old, sick and unemployed. A recent study of social security problems in Canada has pointed out the principles which should be considered if the construction of a comprehensive social security system suited to Canadian conditions is to be undertaken in the most fruitful and effective manner. (1) Among these principles was the endorsement of old age pensions for men reaching the age of 65 years. The Beverage principle of increasing old age pensions for men who would work up to the age of 70 years has been endorsed by authorities on social security in this country.

To simplify calculations for post-war requirements of construction craftsmen during a ten-year period following the war, it has been assumed that construction workers will retire at the age of 65 years. Thus, allowance will have to be made for men who might carry on work until the age of 70 in order to be able to benefit from a higher pension.

It has been emphasized repeatedly that the average construction craftsman in Canada is considerably older than the average person earning his livelihood. Age group statistics in Section II can be summed up as follows:

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(1) Dr. L.C. Marsh: "Social Security for Canada", "Requirements for Post-War Planning", Advisory Committee on Reconstruction, Ottawa, February 1943.





According to the Population Census 1931, only 13.36 percent of persons in construction occupations were between the ages of 10 to 24 while 27.51 percent of all gainfully occupied belonged to the same age group. A similar picture with the trend reversed is shown in a comparison of the age groups 25 to 64 years, in which are to be found 60.06 percent of construction craftsmen as against 44.57 percent of all gainfully occupied (see Table III).

It takes between four and five years to train a skilled construction worker. It will therefore be necessary to start training a young man for the purpose of replacing later on an old man nearing retiring age at the time when the old man reaches the age of 60. To make the estimate conservative, five years are taken to make a construction craftsman out of the unskilled young man; thus, the young man becomes qualified when the old man reaches the age of assumed retirement with 65 years.

Since an age classification by occupations is not available at present for 1941 (Census), statistics of the National Registration, 1940 may suffice. Requirements for construction craftsmen during the first ten years after the war may be summed up as follows:

(1) According to the National Registration there were 23,252 persons in construction occupations belonging to the age group 60 to 69. Allowing for the age group of 70 years and over it can be assumed that there were about 27,000 persons in construction occupations who have either reached retirement age or will do so in the course of the next five years. An equivalent of this number of men will have to be trained in order to maintain the present numerical strength of the skilled construction labour force.

(2) There were 43,250 persons in construction occupations belonging to the age group of 50 to 59 years. Some of these men will die, the remainder will reach retiring age within ten years after the conclusion of the war.

(3) A number of younger men in the age group 10 to 49 will die a natural death (civilians). The mortality rate for males in Canada over 10 years of age was 9.2 in one thousand in 1941. Excluding the age group 50 and over there were 125,418 belonging to the age groups 49 and less. Based on the above mortality rate it is estimated that 11,538 construction workers will die during the ten-year period following the conclusion of the war.

(4) To this has to be added an allowance for casualties among construction workers in the armed forces which has been taken to amount to 5,000 men.

(5) There exists further potential requirements for skilled construction workers in order to make up for the deficiency during the decade prior to 1941. To make up this deficiency 20,000 construction craftsmen would be needed.

There may be a demand for a total of over 100,000 craftsmen in a ten-year period following the conclusion of the war. This estimate is generous on one side and conservative on the other. It is true that men between the ages of 65 to 69 were included as retired. As a matter of fact only a proportion of these men might retire. However, it should also be considered that the above estimate has not taken into account the length of the war. The longer the war lasts, the more marked becomes the need for construction craftsmen. Furthermore, no consideration has been given in the above estimate to the population increase which can be expected to follow during the ten years after the conclusion of the war. Thus, the estimate of approximately 100,000 construction craftsmen may be taken as a fair indication of the need of the construction industry for skilled men during ten years after the war. It is desirable that the majority of these construction craftsmen be trained in this country. If provisions can be made to secure 40,000 construction craftsmen for a short-



term programme as outlined above, it will mean that 60,000 construction craftsmen will have to be trained in Canada in a ten-years period. This will involve an annual quota of 6,000 apprentices. It seems that a training programme of 6,000 young men in the course of one year should be within the reach of the construction industry, especially if it is considered that a great expansion in building and construction is to be expected after the war.

The need for a great training programme of construction craftsmen cannot be over-emphasized. Apart from the administrative problems of providing adequate training facilities, such a programme will face considerable opposition most likely from those who make up the rank and file of the present skilled construction labour force. The depression of the thirties is still fresh in the minds of these men. They have not forgotten the length of time during which they have been without work. The objections of these men can only be overcome if they are assured (1) that there will be enough work for all and that those at present in construction occupations need not fear unemployment; (2) that in case of unemployment for short periods because of the time-lag which occurs before public works supplementing private construction are put into operation, those without work will be properly looked after (unemployment and health insurance); and (3) that provisions will be made to enable those reaching the age of 65 years to retire (old age pensions).

To repeat, unless the skilled construction labour force is given some assurance as to the possibility of making a satisfactory livelihood in the post-war period, it will object strongly to the training of a considerable number of new men. It has to be realized that an aging construction craftsman does not see the need for the training of a young man who will take his place when he retires or dies. He sees in that young man a rival with whom it is very difficult to compete, and only if it is made clear to the aging construction craftsman that he will be taken care of by assuring him of employment or social security in case of unemployment, sickness or retirement, will he consent either that he or others train young men to follow in his foot-steps.

The above outline gives some rough quantitative idea of possible requirements for skilled construction craftsmen in the post-war period. The figures given may change, depending on the duration of the war and on additional information becoming available; but the principles established may give a lead toward the setting up of appropriate plans for the purpose of training a considerable number of construction craftsmen.





APPENDIX I

TABLES: III - V, VII - X, XIII - XXVI.





TABLE III.  
COMPARISON OF AGE DISTRIBUTION OF PERSONS IN CONSTRUCTION  
OCCUPATIONS WITH ALL GAINFULLY OCCUPIED (1).

Age Group Years	Persons in Construction Occu- All Gainfully Occupied pations			
	Number	Percent	Number	Percent
10 - 15	255	0.13	52,630	1.34
16 - 19	6,662	3.28	409,260	10.42
20 - 24	20,213	9.95	618,354	15.75
25 - 34	42,779	21.07	914,962	23.30
35 - 64	121,959	60.06	1,750,878	44.57
65 & Over	11,198	5.51	181,146	4.62
Total	203,066	100.00	3,927,230	100.00

(1) Data compiled from Population Census 1931, Volume VII, pp. 4-9 and 68.

TABLE IV.  
COMPARISON OF AGE GROUPS OF PERSONS IN CONSTRUCTION  
OCCUPATIONS - 1921 - 1931 (1).

Age Group Years	1921 Percentage Distribution	1931 Percentage Distribution
10 - 15	0.44	0.13
16 - 19	4.12	3.28
20 - 24	7.87	9.95
25 - 34	24.01	21.07
35 - 64	58.07	60.06
65 & Over	5.49	5.51
Total	100.00	100.00

(1) Data compiled from Population Census 1931, Volume VII, p. 9.



TABLE V.

AGE GROUPS OF PERSONS IN CONSTRUCTION OCCUPATIONS  
ANALYZED IN THE LIGHT OF NATIONAL REGISTRATION,  
1940, AND THE UNEMPLOYMENT INSURANCE ACT AS AT  
MARCH 31, 1942.

Age Group Years	National Registration 1940(1)		Unemployment Insurance Act as at March 31, 1942 (2)	
	Number	Percent	Number	Percent
Under 16	-	-	322	.23
16 to 19	7,296	3.80	5,011	3.73
20 to 29	33,684	17.58	23,910	17.80
30 to 39	43,368	22.63	34,421	25.62
40 to 49	40,805	21.29	30,080	22.39
50 to 59	43,250	22.57	27,566	20.52
60 to 69	23,252	12.13	11,523	8.58
70 & over	-	-	1,175	.87
Not stated	-	-	362	.26
TOTAL	191,655	100	134,370	100

(1) Data compiled from "Specialized Occupations - National Registration 1940", Table 4 (males only) pp.10-11.

(2) Data compiled from Monograph on "The Insured Population, 1941-42" published by the Dominion Bureau of Statistics. The data are based on the tabulation of all schedules received by the Dominion Bureau of Statistics between July 1, 1941 and March 31, 1942.





TABLE VII.

PERSONS IN CONSTRUCTION OCCUPATIONS FOR SELECTED CITIES OF 20,000 POPULATION AND OVER, IN THE LIGHT OF THE 1921 and 1931 CENSUSES.(1)

Cities	1921 Census Numbers	1931 Census Numbers	Increase or Decrease(2) Numbers
Montreal	19,044	29,698	+ 10,654
Toronto	15,396	19,006	+ 3,610
Vancouver	3,938	8,768	+ 4,830
Winnipeg	5,260	7,019	+ 1,759
Hamilton	3,413	4,694	+ 1,281
Quebec	2,380	3,669	+ 1,289
Ottawa	2,475	3,168	+ 693
Calgary	1,869	2,941	+ 1,072
Edmonton	1,552	2,144	+ 592
London	1,818	2,113	+ 295
Windsor	1,821	2,267	+ 446
Verdun	1,028	2,376	+ 1,348
Halifax	2,632	1,604	- 1,028
Regina	1,164	1,755	+ 591
St. John	1,043	1,127	+ 84
Saskatoon	708	1,589	+ 881
Victoria	1,269	1,112	- 157
Three Rivers	897	970	+ 73
Kitchener	518	759	+ 241
Brantford	850	740	- 110
Hull	525	718	+ 193
Sherbrooke	755	703	- 52
Fort William	529	701	+ 172
Kingston	707	675	- 32
Sydney	712	505	- 207
Sault Ste. Marie	645	604	- 41
Peterborough	555	586	+ 31
Total	73,503	102,011	+ 28,508

(1) Data taken from "Occupational Trends in Canada, 1891-1931", a monograph published by the Dominion Bureau of Statistics, Ottawa 1939, Table VII, pp. 12-15. The occupations for 1921 were re-classified on the basis of the 1931 occupational grouping in this table. The Dominion Bureau of Statistics remarks that it was necessary to adjust several of the 1931 occupational groups for the purpose of obtaining a closer comparison with the 1921 figures.

(2) An increase is shown as + and a decrease is shown as -.





TABLE VIII.

REGIONAL DISTRIBUTION OF CONSTRUCTION WORKERS EMPLOYED  
BY LARGE FIRMS AT THE BEGINNING OF JUNE 1942(1).

A	B	C	D	E	F
Province	Metropolitan Areas (2)	Medium-Size Cities (3)	Small Cities (4)	Rural Areas and Small Communities (5)	Total
	Numbers	Numbers	Numbers	Numbers	Numbers
Prince Edward Island	--	--	41	442	483
Nova Scotia	--	3,843	164	11,556	15,563
New Brunswick	--	583	578	6,917	8,078
Quebec	13,389	351	102	30,906	44,748
Ontario	9,016	4,509	860	28,057	42,442
Manitoba	1,851	71	80	7,322	9,324
Saskatchewan	--	1,190	463	8,159	9,812
Alberta includ- ing North- western Terri- tories	--	2,572	559	7,944	11,075
British Columbia including Yukon	3,853	531	554	8,572	13,510
Canada	28,109	13,650	3,401	109,875	155,035
Percentage Distribution	18.06	9.03	1.94	70.97	100

(1) "Large firms" are considered those with fifteen or more employees. Table compiled from a report made by employers to the Dominion Bureau of Statistics. (Original Calculations). Population figures for urban and rural areas were taken from the Census of 1931 and the Quinquennial Census of 1936. Construction workers refer to skilled, semi-skilled and unskilled persons employed in the construction industry (railway construction included). Salaried personnel is included.

(2) Metropolitan areas: Population over 100,000.

(3) Medium-size cities: Population -15,000-100,000.

(4) Small cities: Population - 1000-14,999. Persons described as "unlocated in province" have been included in Column E. It is important to note that a considerable proportion of persons reported as living in rural areas and small communities might be living in small cities. Because of the considerable proportion of workers reported as "unlocated in province" it is not possible to draw an accurate distinction between those working in small cities and those working in rural areas and small communities.

(5) Rural areas and small communities: Population less than 1000. Construction workers residing in cities, but working in rural areas, have been included in this column. Also included are construction workers temporarily living in rural areas, but employed by firms whose head offices are in cities.



TABLE IX

CONSTRUCTION CRAFTSMEN AND CONSTRUCTION APPRENTICES  
IN THE LIGHT OF THE 1931 CENSUS (1).

A	B	C	D
Occupation	Craftsmen	Apprentices	Ratio of C to B
Erick and stone masons	10,823	426	3.94
Carpenters	79,764	1,500	1.88
Electricians and wiremen	20,231	1,322	6.53
Painters, decorators and glaziers	33,687	1,140	3.38
Plasterers and lathers	5,953	269	4.52
Plumbers, steam fitters and gas fitters	15,593	1,878	12.04
Sheet metal workers and tin- smiths	6,738	628	9.32
Total	172,789	7,163	4.15
All construction occupations (2)	193,963	7,163	3.63

(1) Table compiled from the Population Census 1931, Volume VII, p. 68.

(2) "All construction occupations" include those construction occupations in which apprentices are not trained. The total skilled construction labour force is made up of 195,903 construction craftsmen and 7,163 construction apprentices, a total of 203,066 persons in construction occupations.





TABLE X.

CONSTRUCTION APPRENTICES REGISTERED UNDER THE ONTARIO APPRENTICESHIP ACT, 1927(1)

Year	Bricklaying	Masonry	Carpentry	Painting & Decorating	Plastering	Plumbing	Steamfitting	Sheetmetal Work	Electric Wiring & Installation	Total Number of Apprentices Registered
June to Dec.										
1928	5	-	19	1	9	22	2	-	-	58
1929	137	6	111	41	70	329	113	99	164	1070
1930	32	6	38	14	27	107	21	45	58	348
1931	16	-	17	15	9	25	7	13	17	119
1932	6	-	8	6	1	17	2	6	9	55
1933	1	-	1	5	2	9	-	2	4	24
1934	1	-	2	1	1	7	4	1	5	22
1935	2	1	7	16	-	31	10	10	10	87
1936	3	-	14	25	2	34	7	6	17	108
1937	2	1	8	15	1	18	2	9	25	81
1938	9	-	22	13	5	35	12	11	45	152
1939	5	-	19	15	3	20	4	10	24	100
1940	8	-	21	15	3	32	3	8	27	117
1941	7	-	16	8	1	35	3	11	41	122
1942	2	-	15	5	1	49	9	17	34	132
TOTAL	236	14	318	195	135	770	199	248	480	2595

(1) Table compiled from Statistics supplied by the Apprenticeship Branch of the Department of Labour for the Province of Ontario.





TABLE XIII

COMPARISON OF AGE GROUPS OF PERSONS IN CONSTRUCTION  
OCCUPATIONS AND LABOURERS. (1)

MARCH 31, 1942.

Age Group Years	Persons in Construction Occupations Percent	Labourers Male Percent
Under 16	.23	1.61
16 to 19	3.73	15.80
20 to 29	17.80	30.68
30 to 39	25.62	20.93
40 to 49	22.29	15.13
50 to 59	20.52	10.60
60 to 69	8.58	4.37
70 & over	.87	.50
Not stated	.26	.38
TOTAL	100.00	100.00

(1) Table compiled from the Bulletin on "The Insured Population, 1941-1942" published by the Dominion Bureau of Statistics. The data are based on registrations under the Unemployment Insurance Act 1940 and include all schedules received by the Dominion Bureau of Statistics between July 1, 1941 and March 31, 1942.



TABLE XIV.

EMPLOYEES AND OWN ACCOUNT WORKERS IN CONSTRUCTION INDUSTRY (1)

1919 - 1942

A	B	C	D
Year	Employees Numbers	Own Account Workers Numbers	Gainfully Occu- pied (B + C) Numbers
1919	71,800	32,372	104,172
1920	95,106	43,353	138,459
1921	87,602	40,379	127,981
1922	103,801	46,103	149,904
1923	100,688	42,991	143,679
1924	95,939	39,278	135,217
1925	99,334	38,882	138,216
1926	130,536	43,524	174,060
1927	143,616	46,658	190,274
1928	153,240	48,374	201,614
1929	159,447	48,739	208,186
1930	144,864	42,708	187,572
1931	101,863	33,617	135,480
1932	48,139	25,780	73,919
1933	31,720	17,893	52,497
1934	36,533	9,946	46,479
1935	49,794	13,555	63,349
1936	60,393	16,441	76,834
1937	76,137	20,728	96,865
1938	75,465	20,545	96,010
1939	71,643	19,504	91,147
1940	81,666	22,232	103,898
1941(2)	113,990	22,232	136,222
1942(2)	111,109	22,232	133,341
Average 1919 - 1938	94,301	33,593	127,038
Average 1919 - 1938 Percentage	74	26	100

(1) Data supplied by the Business Statistics Branch of the Dominion Bureau of Statistics. Data refer to construction work undertaken by private contractors only.

(2) Preliminary estimate.





TABLE XV.

AGE GROUPS OF PERSONS IN CONSTRUCTION INDUSTRY  
ANALYZED IN THE LIGHT OF THE POPULATION CENSUS  
OF 1931 AND THE UNEMPLOYMENT INSURANCE ACT AS  
AT MARCH 31, 1942.

Age Groups Years	Population Census 1931 <sup>(1)</sup>		Unemployment Insurance Act as at March 31, 1942 <sup>(2)</sup>	
	Number	Percent	Number	Percent
Under 16	542	.21	1,174	.51
16 to 19	12,416	4.84	22,057	9.62
20 to 24	29,895	11.67	30,745	13.41
25 to 34	61,687	24.07	61,523	26.84
35 to 44	57,714	22.52	47,550	20.75
45 to 54	52,971	20.66	37,715	16.45
55 to 64	28,571	11.15	22,303	9.73
65 to 69	7,713	3.01	3,953	1.72
70 & over	4,799	1.87	1,212	.53
Not stated	--	--	1,006	.44
TOTAL	256,308	100	229,238	100

- (1) Data compiled from Population Census 1931, Volume VII, Table 56, pp. 672 - 673 (Shipbuilding included).
- (2) Data compiled from Bulletin on "The Insured Population, 1941-42" published by the Dominion Bureau of Statistics. The data are based on the tabulation of all schedules received by the Dominion Bureau of Statistics between July 1, 1941 and March 31, 1942.





TABLE XVI.

EMPLOYMENT IN THE CONSTRUCTION INDUSTRY AS  
REPORTED BY EMPLOYERS - INDEX NUMBERS (1)

1938 - 1941

Months	1938	1939	1940	1941
January	81.9	96.4	68.8	83.0
February	71.6	89.4	58.1	82.5
March	71.4	94.3	55.4	83.0
April	71.6	91.6	59.6	100.2
May	88.2	94.2	68.4	120.0
June	114.5	115.3	90.5	139.5
July	124.9	133.1	105.0	149.9
August	128.0	146.3	114.3	160.7
September	133.8	152.2	121.1	153.9
October	143.5	131.5	121.1	155.4
November	122.5	117.6	120.5	147.7
December	112.8	93.8	105.9	143.4
YEARLY AVERAGE	105.4	113.0	90.7	126.6

- (1) Table compiled from index numbers of employment as reported by employers in the construction industry with fifteen or more employees. For sources of statistics see Canada Year Book 1940, page 756, and Canada Year Book 1942, page 683. Base of index: 1926 = 100.



TABLE XVII

UNEMPLOYMENT IN CONSTRUCTION TRADE UNIONS BY MONTHS FOR  
THREE CRITICAL YEARS OF THE CONSTRUCTION CYCLE(1)

1929, 1933 and 1941

Months	1929 Unemployment Percent	1933 Unemployment Percent	1941 Unemployment Percent
January	19.0	69.4	17.4
February	19.8	71.7	19.5
March	17.9	71.0	19.9
April	11.3	66.7	15.2
May	8.2	65.6	10.0
June	7.5	62.5	7.9
July	7.0	61.9	7.3
August	7.2	63.6	6.9
September	8.6	65.8	7.1
October	10.4	65.4	7.7
November	16.3	67.6	8.6
December	25.6	69.1	10.6
Annual Average	13.2	66.7	11.5

(1) Table compiled from statistics published in the Labour Gazette  
February 1930, p.204, February 1934, p.180 and February 1942, p.222.





TABLE XVIII.

UNEMPLOYMENT IN CONSTRUCTION TRADE UNIONS  
FOR THE MONTHS OF FEBRUARY AND AUGUST (1)

1929 - 1942

Years	Unemployment During the month February	Unemployment During the Month August
	Percent	Percent
1929	19.8	7.2
1930	34.0	28.8
1931	47.1	41.5
1932	65.3	61.2
1933	71.7	63.6
1934	69.2	57.3
1935	65.1	44.1
1936	40.3	29.9
1937	43.0	15.6
1938	42.5	30.3
1939	44.6	28.1
1940	38.2	11.1
1941	19.5	6.9
1942	15.5	3.3

(1) Table compiled from statistics published in the Labour Gazette April 1940, p.369, October 1940, p.1052, February 1942, p.222, and October 1942, p.1202.





TABLE XIX

EMPLOYMENT IN WAR CONSTRUCTION DURING THE  
WEEK ENDING AUGUST 1, 1942. (1)

Type of War Construction	Number of men Employed	Percent of To- tal Construc- tion Employ- ment	Percent of War Construction Employment
On contracts from any department of the Dominion Government, or on any sub-contract for a Dominion Govern- ment contract	42,603	25.6	41.7
On contracts from War- time Housing Limited or on sub-contracts of a Wartime Housing Limited contract	6,429	3.9	6.3
On all other war con- struction including construction for war purposes on contract with private companies or with Government owned companies other than Wartime Housing Limited	53,017	39.8	52.0
Total war employment in construction	102,049	61.3	100.0

(1) Table compiled from the statistics supplied by the Department of Munitions and Supply.



TABLE XX.

ANNUAL REMUNERATIONS OF PERSONS GAINFULLY OCCUPIED  
IN THE CONSTRUCTION INDUSTRY AND IN ALL INDUSTRIES (1)

1919 - 1942

A	B	C	D	E
Year	Annual Earnings of Employees in Construction Industry  Dollars	Annual Earnings of Own Account workers in Construction Industry Dollars	Annual Earnings of Gainfully Occupied in Construction Industry, Dollars	Annual Earnings of Persons Gain- fully Occupied in All Industries  Dollars
1919	1,032	1,456	1,164	1,068
1920	1,214	1,935	1,409	1,212
1921	1,100	1,544	1,240	1,137
1922	1,008	1,437	1,140	1,074
1923	989	1,388	1,108	1,105
1924	965	1,332	1,072	1,105
1925	925	1,253	1,017	1,106
1926	891	1,182	964	1,146
1927	881	1,142	945	1,159
1928	865	1,091	919	1,177
1929	870	1,064	915	1,188
1930	843	994	877	1,135
1931	812	958	843	1,085
1932	740	872	775	996
1933	655	773	683	941
1934	815	961	847	966
1935	897	1,057	931	997
1936	944	1,114	981	1,022
1937	1,068	1,260	1,109	1,076
1938	1,072	1,264	1,113	1,100
1939	1,098	1,294	1,140	1,095
1940	1,217	1,435	1,263	1,151
1941(2)	1,286	1,516	1,324	1,237
1942(2)	1,443	1,701	1,486	1,361
Average 1919-1938	929	1,204	1,003	1,090

(1) Data supplied by the Business Statistics Branch of the Dominion Bureau of Statistics. Data in Columns B, C and D refer to construction work undertaken by private contractors only. Data in Column E refers to annual earnings of all wage and salary earners in Canada.

(2) Preliminary estimate.





TABLE XXI.

PERSONS REPORTED IN CONSTRUCTION OCCUPATIONS IN THE ARMED FORCES ACCORDING TO EMPLOYMENT STATUS AS OF AUGUST 1942 (1)

Occupation	Persons employed at time of enlistment (2)	Persons not employed at time of enlistment	Total
Owners, managers, builders, and contractors	2,156	137	2,293
Foremen, overseers, and inspectors	461	23	484
Brick and stone masons	262	43	305
Carpenters	3,306	262	3,568
Cement and concrete finishers	146	17	163
Electricians and wiremen	1,944	185	2,129
Painters, decorators, and glaziers	2,505	377	2,882
Plasterers and lathers	198	32	230
Plumbers, steamfitters, and gas fitters	1,561	200	1,761
Roofers and slaters	95	8	103
Sheetmetal workers and tinsmiths	365	32	397
Structural metal workers	556	56	612
Other construction occupations	3,966	364	4,330
TOTAL	17,521	1,736	19,257

(1) Data supplied for men on active service by Manpower Records, Department of Labour as of 31st August, 1942.

(2) The term "employed" refers to wage earners as well as employers and working proprietors.





TABLE XXII

CONSTRUCTION CRAFTSMEN IN THE ARMED FORCES  
AND CIVILIAN CONSTRUCTION CRAFTSMEN BY PROVINCES

Province	Construction Craftsmen in the Armed Forces <sup>(1)</sup>		Civilian Construction Craftsmen <sup>(2)</sup>
	Number	Percent	Percent
Prince Edward Island	206	1.06	0.51
Nova Scotia	1,621	8.33	5.91
New Brunswick	910	4.68	3.54
Quebec	2,918	15.00	28.22
Ontario	7,369	37.88	39.43
Manitoba	1,417	7.28	4.70
Saskatchewan	1,250	6.42	2.97
Alberta	1,297	6.66	4.53
British Columbia	2,166	11.13	10.19
No information as to Province or enlisted outside of Canada	303	1.56	-
Canada	19,457	100.00	100.00

(1) Statistics compiled from data supplied by Manpower Records, Department of Labour, as of August 31, 1942.

(2) Statistics taken from compilation of the National Registration 1940 (see Table VI).



TABLE XXIII.

APPRENTICES IN CONSTRUCTION OCCUPATIONS IN THE ARMED FORCES  
AS OF AUGUST 31, 1942 (1)

A.	E.	C.	D.
Occupation	Number of apprentices employed at the time of enlistment	Number of apprentices not employed at the time of enlistment	Total
Erick and stone mason apprentices	48	7	55
Carpenters apprentices	434	64	498
Electricians and wiremen apprentices	610	50	660
Painters, decorators, glaziers apprentices	221	50	271
Plumbers apprentices	458	70	528
Plasterers and lathers apprentices	28	4	32
Sheetmetal workers apprentices	71	6	77
TOTAL	1,870	251	2,121
Percentage	89	11	100

(1) Table compiled from the Manpower Records - Occupational History Survey prepared by the National Selective Service. The figures contained in the table relate to Active Personnel from forms received by the National Selective Service not later than the 31st of August, 1942. Consideration is given to discharges and fatal casualties up until June 3rd, 1942 as reported by the armed forces.





TABLE XXIV.

PERSONS IN CONSTRUCTION OCCUPATIONS DISCHARGED FROM  
THE ARMED FORCES AS OF JUNE 30, 1942<sup>(1)</sup>.

Occupation	Persons employed at time of en- listment <sup>(2)</sup>	Persons not employed at time of en- listment	Total
Owners, managers, builders and contractors	343	37	380
Foremen, overseers, and inspectors	52	7	59
Brick and stone masons	43	11	54
Carpenters	263	102	365
Cement and concrete finishers	23	7	30
Electricians and wiremen	126	33	158
Painters, decorators, and glaziers	287	84	371
Plasterers and lathers	26	18	44
Plumbers, steamfitters, and gas fitters	145	41	185
Roofers and slaters	3	3	6
Sheetmetal workers and tinsmiths	26	12	38
Structural metal workers	60	16	76
Other construction occupations	364	65	429
TOTAL	1,761	436	2,197

(1) Table compiled from statistics supplied by the Manpower Records, Department of Labour.

(2) Persons "employed" includes wage earners, employers and working proprietors.





TABLE XXV.

DISCHARGED CONSTRUCTION CRAFTSMEN BY PROVINCES AS OF JUNE 30, 1942<sup>(1)</sup>

Province of Enlistment	Discharged Construction Craftsmen	
	Number	Percent
Prince Edward Island	28	1.27
Nova Scotia	137	6.24
New Brunswick	102	4.64
Quebec	415	18.89
Ontario	805	36.66
Manitoba	143	6.51
Saskatchewan	108	4.91
Alberta	145	6.59
British Columbia	250	11.38
No information as to Province or enlisted outside of Canada	64	2.91
CANADA	2,197	100.00

(1) Table compiled from statistics supplied by Manpower Records, Department of Labour.



TABLE XXVI.

PERSONS IN CONSTRUCTION OCCUPATIONS IN THE ARMED FORCES WITH  
AND WITHOUT A DEFINITE PROMISE OF EMPLOYMENT AFTER DISCHARGE  
ACCORDING TO PROVINCE OF ENLISTMENT AS OF AUGUST 1942. (1)

Province	Definite Promise of Employment on Discharge	No Definite Promise of Employment on Discharge (2)	Total
Prince Edward Island	41	105	146
Nova Scotia	374	949	1323
New Brunswick	214	490	704
Quebec	951	1352	2303
Ontario	2480	3518	5998
Manitoba	419	660	1079
Saskatchewan	321	588	909
Alberta	421	671	1092
British Columbia	680	993	1673
No information as to Province or enlisted outside Canada	62	161	223
Canada	5963	9487	15450

(1) Table compiled from data supplied by the Manpower Records Department.

(2) Persons in construction occupations with "no definite promise of employment on discharge" include those gave as answer "no", "conditional", "indefinite", and "no information".





APPENDIX II.

OCCUPATIONAL AND HISTORY FORM COMPLETED  
BY MEN ENLISTED IN THE ARMED FORCES.





OCCUPATIONAL HISTORY FORM

This form is to be completed for each member of the Armed Forces. The information sought is for the use of General Advisory Committee on Demobilization and Rehabilitation, a Committee set up by the Government of Canada to study plans for establishing in Industrial Life the members of the Armed Forces, after discharge. Accuracy and completeness in answering will be of much help to the Committee.

PLEASE READ CAREFULLY THE INSTRUCTIONS GIVEN ON THE INSIDE OF COVER BEFORE COMPLETING FORM.

Section A - GENERAL INFORMATION

1. (a) Print name in full.....  
(b) Reg'l. No. ....
2. (a) Arm of service .....  
(b) Unit .....  
(c) Rank .....
3. (a) Date of birth .....  
(b) Have you any dependents?.....  
(c) Place of residence at time of enlistment .....
4. (a) Place of enlistment .....  
(b) Date of enlistment .....

Section B - EDUCATION AND TRAINING

5. (a) State age on finally leaving school .....  
(b) Were you attending school or college up to the time of enlistment?.....
6. State definitely highest standing reached at public, technical or high school (for instance-"4 years, Public School", "two years, High School", "Junior Matriculation", or "4 years technical course in printing", etc.) .....
7. If you attended a university, give name of university and standing or degree secured .....
8. (a) Did you ever enter upon a trade apprenticeship?.....  
(b) If so, for what occupation? .....
- (c) Did you finish it? .....
- (d) If you did not finish it, how long did you serve at it?.....
9. (a) What languages do you speak fluently?.....  
(b) What languages do you read well? .....

Section C - EMPLOYMENT CONDITION AT TIME OF ENLISTMENT

- 10.(a) State whether you were WORKING or NOT WORKING at time of enlistment.(Enter here only "Working" or "Not Working", as case may be; particulars are asked for below) .....  
(b) At time of enlistment of what trade union or professional society were you a member? .....

Section D - PARTICULARS CONCERNING THOSE WHO WERE UNEMPLOYED AT TIME OF ENLISTMENT

Questions 11 to 17 refer only to those who answer "Not Working" in Question 10(a)

11. Had you ever been employed fairly regularly since leaving school?.....
12. (a) If answer to 11 be "Yes" state exact trade or occupation at which you actually worked.....  
(b) State how long you had worked at this trade or occupation.....
13. If answer to 11 be "No," state exact trade or occupation for which you feel qualified.....
14. If you had been employed after leaving school, state when you last worked fairly regularly before enlistment.....
15. Give details of last employer, if any: Name.....  
Address.....
16. Nature of employer's business (for instance, "farmer", or "building contractor", or "boot factory", or "iron foundry", or "retail store", etc.).....
17. (a) If your last employment was in a business of your own, state nature and address of business.....  
(b) Date of discontinuing it.....



Section E - PARTICULARS CONCERNING THOSE WHO WERE EMPLOYED AT TIME OF ENLISTMENT  
Questions 18 to 23 refer only to those who answer "Working" in question 10(a).

Please read these questions and reply to those  
applying to you at time of Enlistment.

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If you were an employee working for an employer up to the time of enlistment,  
please answer questions 18 to 21

18. Name of employer.....  
Address.....  
19. Nature of employer's business (for instance, "farmer", or "building contractor",  
or "boot factory", or "iron foundry", or "retail store", etc.).....  
20. (a) Your specific occupation .....  
(b) Number of years' experience at this occupation with any employer.....  
21. (a) Did your employer promise definitely to give you employment on discharge?....  
(b) Did your employer refuse to promise you employment on discharge?.....  
(c) Do you wish to return to your former employment?.....

---

If you were working on your own up to the time of enlistment, that is to say,  
operating a farm, a store, an agency, or in professional practice, or as a  
partner in any such line, please answer questions 22 and 23.

22. (a) State nature of business, or professional practice.....  
(b) Where was it located?.....  
23. (a) Number of years engaged in this business.....  
(b) Have you made, or will you make plans to return to the same or a similar  
business on discharge?.....

---

Section F - PARTICULARS OF FARMING EXPERIENCE

24. (a) Do you wish to engage in farming after the war?.....  
(b) Do you feel competent to operate a farm?.....  
(c) If so, in what kind of farming?.....  
25. (a) Were you born on a farm?.....  
(b) How many years' actual farming experience have you had?.....  
(c) In what provinces did you have experience?.....

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Section G - MISCELLANEOUS

26. Have you made any arrangements other than indicated above, for re-establishment  
in civil life after discharge?.....  
27. If so, state nature of your plans (for example, do you plan to return to school,  
or have you been assured of a job, etc.).....  
28. State any employment preference or ambition you may have, other than indicated  
elsewhere in this form.....

---

DATE..... 19..... SIGNATURE.....





### APPENDIX III

#### ADDRESS ON APPRENTICESHIP BY J.M. PIGOTT.

given at the

MEETING OF THE VOCATIONAL TRAINING  
ADVISORY COUNCIL, OTTAWA, FEBRUARY 22-24, 1943.

This is the first meeting of the Vocational Training Advisory Council to be held under the new Vocational Training Coordination Act. A glance at the Agenda informs one that you are going to cover a fairly broad field of vocational and industrial training. As a subdivision of this you apparently intend to give some thought to Apprenticeship.

The coming of this war brought home to everyone in this country the neglect of trade training as a form of education. It is true that here and there men engaged in industry in one form or another were conscious of the absence of practical plans for trade training and have urged for years that changes should be made in our secondary school education. Some work has been done in certain industries through apprenticeship. The railway shops, for instance, and the printing industry as well as construction, had some form of apprenticeship and in this apprenticeship work they made use to some extent of our technical schools. But, generally speaking, education has not been in the direction of industry. It is only fair to say that industry was probably more to blame for this condition than education. Because of this condition the youth training plans of the Dominion Government were put into effect and progress has been made in this field, but the real field, the field that requires and has required all along the vigorous approach of industry and education has received but scant attention.

It is true that Canada has responded in an extraordinary way to the demands of the war. We have been turning out guns, munitions, ships, on an ever expanding programme and industry has been able by the use of machine tools and quick intensive courses for young people in the use of same to set up and maintain their schedules. No one familiar with this field, however, need be misled by this success. The hundreds of thousands of young men and women in munition plants who are producing these goods are, it is true, performing an operation the sum total of which makes possible this great war effort, but they are not mechanics and when the war ceases and the change is made from war to peace time industry, they will constitute a national problem.

It is not my intention to lecture this gathering on any section of our industrial or educational life. On the contrary. This is a very large subject. It happens that the construction industry, in Ontario particularly, has had an experience in apprenticeship in the field of relating vocational training to apprenticeship and trade work that is possibly unique and that an account of its operation may have some significance in your deliberations.

The Ontario Apprenticeship Act was placed on the statute books on April 3rd, 1928 and the Apprenticeship Branch was opened on June 5th, 1928. Before the Ontario Government passed this Act, which will be described later, they had on a previous occasion refused to proceed with the legislation until the contractors had demonstrated that the movement was practical and agreeable to employers and labour. For about two years before the enactment of this legislation, therefore, the work was carried on by an arrangement between the employers and the Labour Unions, both contributing substantially the funds necessary. Sufficient success was realized to add greatly to the enthusiasm of both employers and Labour Unions concerned, with the result that the Ontario Government decided to make our apprenticeship plan a matter of statutory law and hence we have the Act. This Act was later revised in 1937.

I will not take up the time of the meeting by describing the operations of the Apprenticeship Act. Briefly, it requires in all





designated trades that those under the age of 21 years employed in those trades for a longer period than three months must be taught the trade by the employer and a contract covering this trade over a four year period must be signed and registered with the Department. Under this system these apprentices are brought into classes in the technical schools in the first two years of their apprenticeship and there they receive special intensive courses in their trade and in educational subjects related to it.

The total number of registrations under this Act in the nine designated building trades up to the end of January was 2,629 and the active contracts 467. The Act was very broad and made it possible to bring in other industries. In 1936 the motor vehicle repair trade elected to operate under the Act and in the same year the barbers and hairdressers were added. Including these trades we have today approximately 5,000 registrations and approximately 1,650 active apprenticeship contracts. The completed trades in this period for the nine designated trades in construction were well over 1,600 and in the six or seven years of the motor repair trade and barbering another 1,000 completions have occurred.

These figures may sound substantial to some of you. As a matter of fact, they are puny indeed and would have been very much greater but for the fact that we have had to go through the depression years, which affected construction probably more than any other industry and brought the number of active apprentices down to almost nothing. In 1930, which was our best year, we had 1,418 registrations, 160 completions and 1,168 active apprentices. The low point was in 1935, when we dropped to about 300.

In the Twenty Second Report of the Department of Labour, which was published in January 1942, the figures spoke very clearly of the necessity to restore the apprenticeship work to what it had been in the early 30's. The contractors and labour representatives jointly approached the Ontario Government and discussed the matter with the Minister of Labour first and then with the Ontario Cabinet. We pointed out that in the nine designated trades in Ontario there were only 62 first year apprentices. We also pointed out that despite the great number of withdrawals of young men for military service, which would refer to the third and fourth year apprentices, there were still 147 apprentices in their fourth year in the Province. The contrast between the fourth year and the 1st year was the best way of expressing the neglect of the then existing setup of the work under the Act. We asked that the original advisory committee, which had been so successful in the early years, be re-appointed and the work be restored to the old basis with certain changes. This has been done and already there is an improvement and the prospects, with the encouragement of the Ontario Government, are bright.

The changes that have been made in this Act are very important. They refer directly to the liaison between the technical schools and the apprenticeship work in the trade. I do not need to point out to those who are in attendance here that boys in the technical schools who are taking vocational work are not apprentices. Apprenticeship follows the vocational training. Vocational work is by way of education and is without pay. Apprenticeship, as you know, is the actual contact with the trade in the field, with pay, for a period of four years while the trade is being learned.

It was realized by the Journeymen mechanics, as expressed by their leaders, that the technical school in the use that we had made of it under our Apprenticeship Act was an extremely valuable addition to the training of the apprentice. It was clear also to the teachers in the technical schools that if definite apprenticeship could be made to a substantial degree to follow vocational work that it would make all the difference in the world to the attitude of their students. The turnover in technical schools because of the lack of definite objective is, as you know, serious indeed. The changes which we have made tie the school in with trade training. These new regulations provide that a boy may declare himself a junior apprentice at the end of his first year. He will be so registered at the Apprenticeship Branch of the Department of Labour. At the beginning of





his third year his education is carefully steered towards the trade he will probably adopt and the percentage of trade training as compared with related subjects increases, so that in his last year he is receiving 60 percent trade training and 40 percent related subjects. It is only in the last two years that the work is narrowed down to one trade. These arrangements made it possible to allow a credit of six months against the apprenticeship contract of four years for the third year and a further six months for the fourth year in the technical or secondary school, so that the overlapping means a year saved in the apprenticeship contract and the starting in of the boys at the second year rate of pay, which, in Ontario, will be today in the neighbourhood of 35 cents an hour. These regulations have been posted in all primary and secondary schools and illustrated posters have been made and have been distributed likewise in all Ontario educational institutions. They are or will be displayed in all places where boys will be most likely to see them.

The New Ontario Apprenticeship Committee, which is now meeting regularly every two or three weeks, has set as its objective an enrollment of 500 boys per year until a total of somewhere between 1,500 and 2,000 are registered, which will mean, as the plan carries along, the graduation of approximately 500 mechanics a year.

Just before the war the Manufacturers' Association in Ontario joined with representatives of the Canadian Construction Association in approaching the Ontario Government to make some changes in the control and administration of technical school education. These representations were based more or less on the experience of the construction interests in their apprenticeship work. The changes that were asked by this joint delegation were that the technical school administration should be more definitely separated from the academic section; that industry should have a greater voice, if not the predominating voice; that in return for this arrangement industry was prepared to accept a greater measure of responsibility with a view to making the secondary or technical schools feed into industry more intelligently and more efficiently.

This type of work is, of course, provincial in character. It has, however, enjoyed substantial support from the Federal Government. We know to begin with that the Federal Government's money made our technical or vocational schools possible as they advanced a substantial portion of the cost. We know also that the Federal Government maintained for many years a branch on technical education and, in more recent years through the operation of the Youth Training projects, has made a substantial contribution, but, undoubtedly, apprenticeship work, using the technical schools and the field or trade, is and must continue to be a provincial enterprise. What may well be studied by this group and by the Federal authorities is how best they can assist the provinces to carry on this work.

So far as I know, apprenticeship legislation exists in only three or four of the provinces and in some of them it is not making any particular progress. If what is being done in Ontario seems to be constructive and sensible and, if in the opinion of this gathering it holds the answer to many of our difficulties, then it is a proper subject to be considered and discussed with a view to duplicating it by encouragement and possibly by grants in other provinces.

Much more important than this, however, is the application of these principles to the whole question of vocational and trade training in Canada. As soon as the war is over, or before that, we will be facing the serious problem of rehabilitating soldiers, of putting them back into the trades they came from; of completing a trade training which they had only partly completed or teaching them full trade training so that they can earn their livelihood in the community. But that is not all, we have all the hundreds of thousands of men in munition plants who will be only very slightly trained at work which will probably be discontinued and that will be adult education of one type or another.





It is of the utmost importance that this adult training or that this training for rehabilitation will not interfere with the vocational work preceding apprenticeship and the actual apprenticeship system for minors. To have this work swallowed up by adult education would be a serious matter. Not only should the apprenticeship system, a combination of vocational school and field job, be protected, but it should be, by a combination of Federal and Provincial Governments, extended into all lines of industry based more or less on the experience of the construction trades. The after-war problem will disappear in a few years but while it is being dealt with, the broadening out and building where it does not already exist, thorough going apprenticeship and vocational plans should be perfected.

Canada, in the opinion of many, is facing a period of fifteen or twenty years at least of extraordinary expansion. It is a country whose interest and development will call for technical training rather than training of the academic type. This is the time to plan to meet this along broad lines, so that we will be in a position to seize our opportunity and provide for this country the development that is undoubtedly awaiting it.





Advisory  
COMMITTEE ON RECONSTRUCTION

VI. R E C O M M E N D A T I O N S

on

THE CONSTRUCTION INDUSTRY IN RELATION TO POSTWAR ECONOMIC POLICY

by

O. J. Firestone, M.A., Ph.D.

Ottawa

October, 1943

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These recommendations are based on factual information assembled in Preliminary Reports I - V. A draft of the recommendations was sent to representatives of the construction industry, the professions and to a number of government departments. Comments were received and account has been taken of them in drawing up the final version of recommendations.



THE CONSTRUCTION INDUSTRY  
in relation to  
POST WAR ECONOMIC POLICY

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Ottawa, October 1943.

O.J. Firestone.

I. EMPLOYMENT STABILIZATION

1. CONSTRUCTION RESERVE.

An adequate fund of construction, conservation and development projects must be organized in advance, not only to take care of the immediate post-war period, during which a considerable slack of employment is expected by everyone, but also to act as an employment stabilizer in a longer term embracing at least ten to fifteen years after the conclusion of the war. Recommendations in this direction, including the set-up of federal administrative machinery (National Development Board), have already been made to the Government by the Advisory Committee on Reconstruction.

Opinion on the proper size of a "construction reserve" varies, but evidence assembled regarding the comparatively large volume of construction in the twenties and the small volume in the thirties indicates that there exist unfilled needs of private, semi-public and public construction of nearly three billion dollars. Private industry, public utilities and governments combined should thus aim at a construction reserve of three billion dollars as a long-term insurance against serious dislocation of the Canadian economy. It is important to add that this construction reserve should be utilized flexibly in proper apportionment during the transition period from a war to a peace-time economy, but more particularly, for a period of slump which might follow the post-war reconversion boom.

As a first approximation, and subject to a more detailed analysis, it is estimated that residential construction, public and private, during the first three post-war years could make up about one-third of this total. Another third may come from industrial, commercial, institutional and other types of construction from private sources and from works projects of municipalities, provincial governments and semi-public bodies. The remainder of the construction reserve would be the responsibility of the Dominion Government. This approximate division is made here only for the purpose of suggesting the spheres within which the construction programme may be carried out after the war, and does not attempt to estimate the financial contributions which will be made by those participating in the programme. This is a matter needing careful consideration by competent authorities.

2. Administrative Measures.

The proposed National Development Board has to perform an economic task, i.e. to contribute to the stabilization of the national income, and should not be merely a cataloguing office of construction and development projects. It therefore requires an economic division which should be concerned with the appraisal of technically and financially approved projects with regard to:





(a) their flexibility; (b) their relation to available labour resources; (c) the field of employment provided in terms of on-site and off-site man hours; (d) the type of construction labour required in terms of various kinds of construction workers (skill-groups); and (e) certain aspects of timing. And not less important should be the institution of comparisons of the results obtained from completed construction projects with the original expectations as to the beneficial effects to accrue to the Canadian economy.

Admittedly, the Department of Finance, which will be responsible for Canada's post-war fiscal policy, must have the ultimate say in the timing of construction and development projects. In the determination of the nature and the timing of projects to be selected, however, the economic division of the National Development Board, because of the intimate knowledge of the inter-relationship of projects and their tie-up with material and labour resources, could provide useful information which should be taken into consideration so as to insure that the proper timing of projects will be accompanied by the best use of the productive resources of this country. Thus, for example, if the training programme of skilled construction workers does not make satisfactory progress, it may be advisable, when determining the composition of the early post-war construction programme, to lay primary emphasis upon new construction projects, leaving the bulk of alteration and repair construction, which requires more skilled labour than new construction, to a later period.

## II. LABOUR SUPPLY

### 3. Consultative Machinery.

A consultative body representing management and workers in the construction industry and government should be charged with the responsibility of investigation and recommendation on all problems affecting the supply of labour.

Most suited for this purpose would be the National Joint Conference Board of the Construction Industry, formed in 1941, which is concerned with matters affecting employer-employee relations. This Board should continue in the post-war period and its functions should be enlarged to enable it to deal with a number of problems of labour supply described below in sections 4 and 8.

### 4. Apprenticeship Training.

A model apprenticeship act, based on a review of existing apprenticeship legislation and administration, their achievements and failures, should be prepared and its adoption should be recommended to those provinces which have no apprenticeship training legislation or whose legislation differs considerably from the model apprenticeship act.

Furthermore, assistance to apprenticeship training in the provinces is desirable and is already provided for, as a wartime emergency measure, under the Vocational Training Coordination Act. Its provisions should be extended to cover the





post-war period, and assurance should be given to those provinces introducing legislation similar to the model apprenticeship act that they will continue to receive financial assistance from the Dominion Government in carrying out their training programmes.

#### 5. Certification of Skilled Construction Workers.

Settlement of the question of what qualifications and experience entitle a man to be called a construction craftsman is essential. This, obviously, requires co-operation between employers and employees in the construction industry.

Consideration will have to be given to the formulation of a generally acceptable definition of "craftsman". Once a definition is agreed upon, it may be put into practice by a system of certification of construction craftsmen.

There are three paramount advantages to be gained from the existence of a generally accepted definition of construction craftsman, coupled with a system of certification:-

(a) It would dispel the present confusion between the various grades of skilled construction workers.

(b) It would tend to diminish the intensity of disputes about wage rates for different grades of skill within one trade. There will be less argument as to whether a man is a rough carpenter, a fine carpenter, or one of the other ten possible types of carpenter. Once the definition of a skilled carpenter is accepted generally, there will be one wage-rate to cover carpenters, irrespective of the kind of work they do.

(c) Persons without the qualifications required to obtain a certificate will not be regarded as construction craftsmen. In this way, further dilution of the skilled construction labour force will be avoided in the future. A need exists for provisions for additional apprenticeship training and up-grading courses to enable those excluded by a system of certification to obtain the necessary skill to qualify for the granting of certificates.

Experience in Great Britain points to the great benefit to be derived from a system of certification which assures employers that their workmen have a minimum standard of skill and which, at the same time, prevents semi-skilled workers from underbidding construction craftsmen.

#### 6. Supply of Building Labour.

To avoid a serious shortage of skilled construction workers and major bottle-necks in the smooth operation of a large construction and development programme in the post-war period, plans should be prepared making provisions for the immediate needs of the first three post-war years and for the long-term needs of a period of at least ten years.

A short-term programme in the first three years after the war should aim to provide an additional 40,000 skilled building mechanics. Possible sources of labour supply are:



(a) construction apprentices who have not completed their training; (b) semi-skilled men in the Armed Forces and war industries who can be up-graded; and (c) immigration of skilled construction craftsmen from selected European countries.

A long-term programme should aim at a replacement of construction craftsmen based on an age of retirement between 65 and 70 years. To achieve this, an additional 60,000 construction craftsmen will be needed over a ten year period following the short-term programme. The future labour supply would come from an extensive apprenticeship training programme of at least 6,000 apprentices a year for Canada as a whole.

#### 7. Extension towards Year-round Employment.

It is claimed that one of the chief means available for the reduction of construction costs in the post-war period lies in a lowering of the wages paid to construction workers. It is, however, not desirable that the annual income of construction workers, which in the pre-war period was below the average income of the gainfully-occupied population, should be reduced. A reduction may be unavoidable if there is a decline in the general wage level. If measures designed to maintain the general wage level do not succeed, it would be possible to couple a reduction of the hourly wage rate paid to construction workers with the maintenance, at least, of their yearly income, by increasing the average number of man-days worked during the year.

There are several ways of approaching the problem of extending employment throughout the year. (a) One approach involves the advanced planning of construction projects with a view to reducing dependence on the weather to a minimum. The possibility of a reduction of seasonal slack in employment during the winter-time is limited, but it does exist. (b) Another calls for closer co-operation among management, organized labour and employment exchanges, so as to provide more regular employment and to avoid having construction workers idle in one locality while there is a shortage of men in another. (c) Still another approach would be to make it attractive to management in the construction industry to offer workers continuous employment throughout the year. (d) Concessions on the part of trade unions, to permit their members to do general handiwork in the off-season, and to reduce restrictions on the use of technological improvements, might greatly improve the opportunities for employment for construction workers. As the problem to be solved is a very difficult and complicated one, it should be approached from all these angles.

Thought should also be given to a proposal which has hitherto not received more than casual consideration, namely, that standard wage-rates of construction workers should be lower during the off-season (winter) than in the busy season (spring to fall). Large firms in the construction industry





would profit by a reduction of their overhead expenses, while small contractors and builders, who frequently discontinue business during the winter months, might be able to remain in business and to get contracts, whose fulfilment would not be impeded by the winter weather. It all amounts to an attempt to induce private enterprise, semi-public and public bodies to let construction contracts on jobs, such as inside structural changes in buildings, not dependent on the weather, during the winter, because it would be cheaper to do the job then than it is during the busy season.

The view is widely held that organized labour will not be willing to make any concessions on the hourly wage-rate even if it is assured of an increased annual income. The dire shortage of skilled construction workers during the war years has caused a considerable increase in the wage-rate paid to skilled construction workers, and has, at the same time, been accompanied by a dilution of the skilled construction labour force. In the scramble for jobs in the immediate post-war years, a decline of wages and salaries of all kinds of workers may be unavoidable, although every effort should be made to prevent any drastic changes in the income receipts of wage earners. It must be of paramount interest to trade unions representing construction workers to prevent at least a decline of the annual earnings of construction workers. If this can be done to the satisfaction of management and workers by reducing the wage-rate per man-hour and, at the same time, increasing the number of man-hours worked in the course of the year, trade unions will have to consider this proposal carefully, if they are seriously interested in maintaining the income level of construction workers despite temporary slacks of employment which may be unavoidable in the post-war period.

#### 8. Social Security.

The success of an extensive training programme of construction workers depends on a substantial field of employment provided by a large post-war construction programme, supplemented by adequate social security measures. The introduction of some basic social security measures for construction workers, more particularly old age pensions and health insurance, is an essential adjunct to plans designed to assure the smooth operation of the construction industry after the war.

If certain social security provisions are not implemented after the war, considerable opposition to a training programme will be forthcoming from a group of older construction workers who feel that it will be hard for them to compete with newly-trained men, who, because of their younger age, may find it easier to secure jobs. These objections can be overcome by assuring construction workers (a) that a substantial volume of construction work will be available after the war, so that those at present in construction occupations need not fear unemployment; (b) that in the case of unemployment, for short periods, unemployment insurance benefits will be paid, and (c) that under a contributory old age pension scheme, retirement between the ages of 65 and 70 years will be possible.





### III. INCREASED EFFICIENCY OF INDUSTRY

#### 9. Organization for Representation and Development of the Construction Industry.

Better organization to assure better representation of the construction industry is still needed. The Canadian Construction Association, the strongest representative group in the construction industry, includes only about 10 per cent of the total number of entrepreneurs, recruited mainly from large and medium sized enterprises. In prosperous times, contractors in this country number more than ten thousand.

The nucleus of an organization representing both management and labour in the construction industry is the National Construction Council, founded in 1933. The objectives of the National Construction Council must secure general approval. Very little, however, has been done in the past towards the realization of these objectives and in the ten years of its existence, the National Construction Council has not been able to overcome the rugged individualism of contractors and builders.

It is essential that the primary objectives of the Council be achieved in the post-war period. They should include: (a) the unification of the construction industry, planning its future and formulating its aspirations as an industrial unit; (b) the study of ways and means of establishing the industry and of eliminating waste; (c) the promotion of fair professional ethics and building practices; and (d) the co-ordination of industrial and scientific research in the construction field.

#### 10. Co-operatives among Medium and Small Contractors and Builders.

If small and medium sized contractors and house builders are to survive in a period of centralization and increased use of machinery, a co-operative pooling of their resources is essential. Up to the present, small men in the industry have depended on the mercy of big enterprises for the hire of heavy machines, such as cranes, bull-dozers and digging machinery.

The creation of co-operatives should be encouraged in local areas where the number of small and medium contractors and builders and the business on hand warrants their existence. These co-operatives could acquire modern machinery and thus be able to compete with the larger firms on an equal footing..

A step in the right direction is already evident in the recent venture of a small group of house-builders who formed the "National House Builders' Association". This organization



aims at (a) an association of home builders for the purpose of mutual advantage and co-operation, (b) improvement in the character and quality of houses, (c) establishment and development of standards of practice in the house building field, (d) exchange of experience and information, and (e) representation of its members in matters of national, provincial and local policy affecting house building.

#### 11. Fair Practice or Licensing of Contractors and Builders.

The problem of how to reduce the irresponsible element among contractors and builders demands solution. The need for certain safeguards will be particularly great in the post-war period when a temporary boom in construction will attract many newcomers.

The alternatives open are: (a) a central organization embracing the majority of contractors and builders could be charged with the responsibility of maintaining "fair practices" among its members, and of raising the standard of the industry as a whole so as to assure the public of satisfactory and economic services. The practical application of the fair practice rule would depend largely on an extension of the present inspection system carried on by private firms and by public authorities. (b) The second possibility requires the licensing of contractors and builders. Under a licensing system, minimum requirements as to experience, financial standing and integrity would have to be fulfilled by anyone desiring to set himself up in the contracting and building business.

A voluntary system of assuring fair practices among contractors and builders is preferable to a licensing system, but if the former should again fail in the post-war period, as it did in the past, then licensing is the solution. Such a system would provide the government with an efficient tool for restricting the entry into the construction field of newcomers not possessing the required qualifications. This system would not only safeguard the industry from cut-throat competition from inexperienced men, but would also protect the public, which frequently entrusts its construction projects to such men. In the past, the majority of men entering the construction field in boom periods, which lasted only a few years, failed, went bankrupt and quickly withdrew from the building business after a decline occurred in the volume of construction. Licensing could be used for the purpose of protecting would-be contractors and builders from the results of their own lack of foresight.

#### 12. Integration as a Means of Securing Efficiency.

Lack of integration between the essential stages of construction operations is still a major source of waste. Integration is here defined as the organization of the construction industry and related industries on such a basis as to make certain that the relations between the essential stages of production and consumption, beginning with firms supplying raw materials and ending with the services provided





for the consumers, including the liquidating of obsolete structures, follow a single clearly defined line. This would ensure a minimum of waste and the carrying out of each step with maximum efficiency.

There is need for an advisory body, preferably attached to the National Construction Council and charged with the study and formulation of recommendations on the integration of the construction industry and related industries.

Such an advisory body should include representatives of (a) industries producing raw materials, (b) processing industries and building material manufacturers, (c) transportation industries, (d) professional men, including architects, engineers, land surveyors and realtors, (e) wholesale and retail businesses distributing equipment and building materials, (f) contractors and house builders, (g) financial institutions, including mortgage and insurance companies and (h) organized labour.

### 13. Building Policy.

Building in Canada in the past has been characterized by a haphazard approach to such important factors as design, standards of materials and workmanship, which are paramount determinants of the cost and quality of completed structures.

Representatives of the construction industry, materials suppliers, professional men, financial institutions and underwriters and government departments should be united in three building policy committees for the purpose of studying the technical problems of house-building and other types of construction and of determining where information on good practice is either confused or lacking, so that existing confusion can be dispelled and gaps filled in by a competent research organization. The information collected, supplemented and codified, should be made available to the construction industry and related industries in a clear and understandable form. While the formation of policy committees is primarily a responsibility of private industry, there should be attached to the appropriate government department (National Research Council or National Development Board) a secretariat which would provide the necessary facilities to the policy committees, co-ordinate and publish their work, and establish contact with similar bodies in Great Britain and the United States.

The three building policy committees should be concerned with (a) design, (b) structures, and (c) installations. The first committee would concern itself with urban residential buildings, farm buildings, business and factory buildings, schools, railway stations, public buildings, airdromes and other structures of a permanent character. The functions of the second committee would include problems relating to material such as lumber, brick, reinforced concrete, steel and problems relating to parts, such as walls, floors and roofs, including methods of fire protection. The third committee would study the problems of lighting, gas, ventilation, heating and plumbing, etc. These policy committees would be





of a temporary nature, created for the specific purpose of formulating a building policy to be pursued after the war in a more uniform manner than in the past.

14. Research Division of the National Construction Council.

Technical research, on which the progress of private industry depends, should be co-ordinated. The building policy committees outlined above will, to a great extent, be dependent on research material supplied to them by a research organization. Co-ordination of research, hitherto carried on by individual firms, will bring a greater demand for standardization and simplified practice.

There is an urgent need for an independent private research organization designed to further progress and development of the construction and related industries. The most appropriate solution would be the creation of a research division in the National Construction Council, subdivided into the following sections: (a) design; (b) dimensions (a section to be charged with problems similar to the American Project A-62, engaged in research on the four inch model); (c) quality of material; (d) assembly methods and (e) efficiency of management. This last section would explore the possibility of reducing overhead expenses and of simplifying the present wasteful methods of tendering.

As a representative organization of private industry, this division would also be charged with the formulation of desirable standards and simplification practices and with recommendations thereon to the Canadian Engineering Standards Association.

15. Statistical Research.

Continued research and co-ordination of relevant statistics is needed to carry on the work begun in the supporting reports.

(a) No information is, as yet, available indicating the economic significance of public spending for construction projects. This information is essential, however, to an estimate of the effect of government spending on building and construction upon the business cycle and to a full understanding of the results of fiscal policy in the past.

A compilation of statistics with reference to public (Dominion, provincial and municipal) and semi-public expenditures for building and construction purposes during the period 1929--1943 should be undertaken. This compilation should be followed by an analysis of this period, which covers a full Canadian business cycle. Because of the nature of this research project, co-ordination of effort with the Department of Finance is desirable.

(b) Statistical material on housing, rents, income and family composition are mainly available from census material, compiled by the Dominion Bureau of Statistics, available every tenth year. There is dire need for statistical information indicating changes within the ten-year period. Such information can be obtained from records available in the Housing Administration of the Department of Finance.



The gathering of these statistics should be commenced immediately on a monthly basis and should be conducted in such a way as to make them comparable with housing statistics available from the Dominion Bureau of Statistics.

(c) While commendable work is being carried out by the Dominion Bureau of Statistics in compiling considerable statistical information on construction and housing, more co-ordination and extension of information of certain statistical series is desirable. In particular, this would include: (i) the scope of the Construction Census should be extended to include data on construction work performed by the railway companies, certain public utilities and other firms which carry out construction projects with their own employees. (ii) There should be co-ordination of the Construction Census with construction employment figures gathered by the Employment and Payroll Statistics Branch of the Dominion Bureau of Statistics. There is, at present, no direct comparison between these two statistical series. (iii) A compilation of the number of housing units constructed during each month, based on information available on building permits in 20<sup>4</sup> selected communities, should be made. (1)

(d) There is need of co-ordination of statistics on construction and housing compiled by the Dominion and provincial governments, municipalities and private institutions. In particular, housing surveys conducted by provincial and city commissions, welfare organizations, universities and private research agencies should be collected and their results compared and brought into line with statistics compiled by Dominion Government Departments.

## 16. Standardization

The construction industry has done very little in the past twenty years to further standardization and simplification of materials and processes, although they are important factors determining the quality and cost of its products. While, no doubt, a research division in the National Construction Council, as previously suggested, would deal with many of the problems involved, this matter is of such great importance that it cannot be left entirely to the discretion of the industry. At least six Dominion Government departments are interested in the problems of material research, standardization and simplification, but there does not exist a central Government agency of the type represented by the National Bureau of Standards in the United States. There are two methods by which further standardization and simplification of practice in the building field might be achieved in the post-war period.

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- (1) Following a recommendation made by the Advisory committee on Reconstruction, and with the assistance of its research staff, the Dominion Bureau of Statistics commenced compilation of this new statistical series in May 1943, providing comparable data back to January 1942.





One is to entrust the Canadian Engineering Standards Association with the formulation and carrying out of preliminary procedures necessary before a standard or a simplified practice receives general recognition. In that case, financial assistance, to a much greater extent than at present, would have to be accorded to the C.E.S.A. Its responsibilities would have to be enlarged to include the carrying out of an educational programme designed to convince industry and the public alike of the advantages inherent in voluntary standardization and simplification of practice.

At the same time, the appropriate Government department, preferably the National Research Council, would have to act as a centralizing body for research and administrative practices carried on by the government departments in reference to the standardization and simplification in the building field, and would have to formulate recommendations for voluntary standardization or simplification if such recommendations are desirable but not forthcoming from industrial organizations or individual firms. These recommendations would be forwarded to the C.E.S.A. with the request that the necessary procedures be introduced.

Furthermore, the National Research Council would have to do original research in matters affecting design, dimensions, quality of materials and assembly methods, supplementing the work carried out by the Research Division of the National Construction Council. This is necessary since the private research agency could not possibly examine all angles of the problems involved and would probably be mainly interested in short-term improvements. A public research agency, not guided by reasons of expediency and profits, would map its research programme on a long-term basis, taking into account all factors from which the public as a whole could benefit. Recommendations for standardization and simplification of practices would certainly result from research work carried on directly by the National Research Council.

The other possibility is to have two standardizing agencies, the Canadian Engineering Standards Association, introducing standards originating in private industry, and a Dominion Bureau of Standards, introducing standards originating in federal and provincial government departments and municipalities. The Dominion Bureau of Standards would be simply a section of the National Research Council, combining the research and administrative practices of other Government Departments with its own research for the purpose of introducing standardization procedures and promoting their acceptance on a voluntary basis. The Dominion Bureau of Standards should be concerned, in the beginning, with standardization and simplification in the building field alone. If this experiment proves successful and does not mean duplication of effort, the sphere of activity of the Dominion Bureau of Standards could be gradually extended to include other fields.

Federal grants to the C.E.S.A. have been too small to allow the Association to embark on any large programme of educating industries and the general public as to the advantages





of standardization and simplified practice. If the appropriation for this purpose is not substantially increased, funds will have to be put at the disposal of the Dominion Bureau of Standards to carry out the necessary programme of education. It is of minor importance which of these two agencies would be charged with carrying out the programme. The crucial point is that educational work has to be undertaken and funds should be provided for that purpose.

The main reason for having a Dominion Bureau of Standards whose functions are to supplement (and not duplicate) the work of the C.E.S.A., is to cover the large field of standardization and simplified practice, of which the C.E.S.A. though in existence for over twenty years, has been able to cover only a small section. It is a public responsibility to assure faster progress in matters of standardization and simplified practice than in the past. This argument is similar to that which led the United States Government to create the National Bureau of Standards under the Department of Commerce as an agency supplementing the activity of the American Standards Association.

#### V. GOVERNMENT ASSISTANCE AND ENCOURAGEMENT TO BUILDING.

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In addition to the Government's responsibility for taking an active part in matters affecting employment stabilization, efficiency of industry, building policy, research and standardization, there are some additional measures of financial and technical character which are of no minor importance. They are listed separately because they are left solely to the initiative of the Dominion Government.

##### 17. Implementation of the National Building Code.

The National Building Code, the exemplary result of co-ordinating work of a number of Government Departments, published in 1941, has as yet not been adopted by a single community in Canada.

There are several reasons given for this: (a) Civic authorities are overburdened with work due to the war and they have no time to study, adjust and implement the extensive provisions of the National Building Code, (b) There is no programme to educate civic authorities and the public as a whole as to the urgent need of satisfactory building by-laws and zoning regulations. (c) The National Building Code is too complicated for city councils and the general public in many of the cities to understand, particularly if they are small.

These and similar excuses do not justify further delay of a programme designed to induce every urban municipality or community of importance to implement the main features of the Code.

The immediate set-up of a Dominion Town and Community Planning Agency in an appropriate department of Government is essential to provide an administrative machinery for promoting



and co-ordinating town and community planning, and assisting in the simplification and adjustment of building by-laws and zoning regulations.

The National Housing Administration and the National Research Council of Canada, which sponsored jointly the National Building Code, should be asked to prepare a simplified version of the National Building Code restricted to the main provisions affecting residential construction.

Thereafter, the Dominion Town and Community Planning Agency should, in its programme of educating civic authorities and the public, lay great emphasis on the need of adopting a satisfactory building code along the lines suggested by the simplified version of the National Building Code.

Close co-operation of the Dominion Town and Community Planning Agency with the Canadian Federation of Mayors and Municipalities is desirable, since this Association can render valuable services towards the promotion and acceptance of by-laws and zoning regulations.

#### 18. Experimental Building.

Progress in building depends to a large extent on experimental building. Financial institutions and mortgage companies are conservative in their lending policies and very seldom support experimental construction of residential buildings which may not be a success from an investment point of view. Experimental building, designed to advance technical progress, particularly in the field of low-cost housing, is a public responsibility.

Financial grants should be made to architects, builders and building material manufacturers who volunteer to erect experimental buildings. These grants should be made only after it has been established that construction of the experimental building may advance the existing knowledge of building methods, new kinds of materials and installations and new designs, the main purpose being the achievement of reductions in cost and of the increase in the comforts provided.

Furthermore, an appropriation should be made, enabling the appropriate government department, most conveniently the National Housing Administration, to undertake experimental building on its own account in case private sources do not show sufficient initiative.

#### 19. Restrictive Practices.

There are two aspects of the problem of restraint of trade connected with the supply of construction materials and machinery. The first is a national one, the second is one concerning Canadian trade relations with the United States.





In Canada, one of the fields in which most frequent complaints were made in pre-war years of the formation of combines or the development of restrictive practices was that of the trade in construction and building materials and supplies. The complaints alleged restrictive arrangements among local contractors or suppliers or monopolistic or restrictive practices on the part of manufacturers. In two instances, those of the Amalgamated Builders Council and the Electrical Estimators' Association, inquiries under the Combines Investigation Act resulted in prosecution of the members for illegal restraint of trade.

The situation in the post-war period should be carefully watched because a great increase in the volume of building which the construction industry and related industries can expect for a number of years after the war, may intensify the trend towards centralization in a form harmful to the Canadian economy. The introduction of new materials which may be subject to patent rights or whose production may be confined to a few manufacturers would also provide an opportunity for restrictive price control or restrictions on utilization. Adequate publicity against anti-social restraint in conjunction with constant examination of trade practices would be most effective and may make more serious action unnecessary. In case of serious complaints, inquiry and if necessary, prosecution under the Combines Investigation Act would have to be undertaken.

In the United States, complaints against restrictive practices of suppliers of construction materials and machinery are numerous. Hearings before investigating committees of the Senate, Congress and independent agencies of government are frequent and are followed in some cases by close investigation and prosecution. The proportion of construction materials imported from the United States into Canada has been comparatively small, but the proportion of construction machinery has been high, particularly in recent years.

The action of the United States Government against restrictive practices of firms supplying construction materials and machinery should be carefully watched by Canadian authorities (preferably the Department of Trade and Commerce and the Combines Investigation Commission) with special reference to those firms which export regularly to Canada. Consultation with the United States authorities and concerted action are advisable in such cases. Proper advice to Canadian importers and adequate publicity may also help to avoid harm to the Canadian economy, resulting from restrictive practices of foreign firms exporting to this country.

#### 20. Research Grants.

A benevolent attitude towards private research on the part of the Dominion Government is desirable. It will mean great encouragement to organizations, individual firms and professional people.





Research grants should be made to organizations which are engaged in serious research work under qualified guidance. Worthy institutions would include National Construction Council, the Canadian Engineering Association, the Royal Architectural Institute of Canada, the Canadian Federation of Mayors and Municipalities, universities and technical colleges and other privately organized research groups whose integrity is established. Private research groups could be put under the supervision of universities which could be charged with the administration of research grants for those groups.

Inducement should also be given to contractors, builders and other firms connected with the construction industry to prepare for post-war contingencies by allowing them to charge their post-war planning expenses against overhead, thus reducing taxes payable for the amounts involved.

21. Conference of the Construction Industry and Related Industries.

A conference should be called of all industries interested in construction activity, including material and machinery manufacturers, representatives of transportation industries, contractors, builders, architects, engineers, labour representatives, federal, provincial and municipal officials, for the purpose of familiarizing all participants with the task ahead of them and receiving suggestions. Such a conference would necessitate an agenda prepared in advance, with speakers selected, with a view to making specific contributions in accordance with the agenda, each topic to be followed by a short discussion.

The main function of this conference would be to initiate consultative work between management and labour on many of their common problems outlined here in the text of the recommendations presented. Furthermore, it should be possible to induce construction firms to get together when they realize that they have not only to plan the future together, but also have to secure a firm basis for their post-war task by carrying out preparatory work covering such problems as better organization of the industry, fair practices, increased business efficiency, technical, architectural and economic research, and standardization and simplified practice.

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The efficient carrying out of a post-war construction programme will depend on the co-ordination of efforts of management, workers and government. The recommendations listed above can usefully be classified according to whether in the main they involve the joint responsibility of management, workers and government, or whether they are tasks which can be adequately undertaken on the sole responsibility of one of the parties, management, workers or government.

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I. JOINT RESPONSIBILITY OF MANAGEMENT, WORKERS AND  
GOVERNMENT

1. Consultative Machinery.
2. Apprentice Training.
3. Certification of Skilled Construction Workers.
4. Supply of Building Labour.
5. Extension towards Year-round Employment.
6. Social Security.

II. JOINT RESPONSIBILITY OF MANAGEMENT AND GOVERNMENT.

7. Building Policy.
8. Standardization.
9. Fair Practice or Licensing of Contractors.

III. RESPONSIBILITY OF MANAGEMENT.

10. Organization for Representation and Development of the Construction Industry.
11. Co-operatives among Medium and Small Contractors and Builders.
12. Research Division of the National Construction Council.
13. Integration as a Means of Securing Efficiency.

IV. RESPONSIBILITY OF GOVERNMENT

14. Construction Reserve.
  15. Administrative Measures for Employment Stabilization.
  16. Statistical Research.
  17. Implementation of National Building Code.
  18. Experimental Building.
  19. Restrictive Practices.
  20. Research Grants.
  21. Conference of the Construction Industry and Related Industries.
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Gov. Doc Can Com R	448975 Canada. Reconstruction, Advisory Committee on [Studies and factual reports.] <u>No. 12(4-6): Preliminary reports IV &amp; V, by</u> O.J. Firestone., and Recommendations.	DATE. <u>VI</u> 1949	NAME OF BORROWER.
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